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GLOSSARY OF INDIAN MEDICINAL PLANTS

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Wiad. farm — Wiadomości Farmaceutyczne. Warszawa.

Wien. med. Wschr.— Wiener medizinische Wochenschrift. Wien.

Yearb. Pharm.— Yearbook of Pharmacy. London.

Z. allg. öst. ApothVer.— Zeitschrift des Allgemeinen Österreichischen Apothekervereins. Wien.

Zbl. Physiol.— Zentralblatt für Physiologie. Leipzig.

Z. ges. exp. Med.— Zeitschrift für die gesamte experimentelle Medizin. Berlin.

Zh. prikl. Khim. Mosk.— Journal Prikladnoi Khimi. Moscow.

Z. Untersuch. Lebensmitt.— Zeitschrift für Untersuchung der Lebensmittel. Berlin.

Z. Vitaminforsch.— Zeitschrift für Vitaminforschung. Bern.

ABBREVIATIONS

Abortif.	abortifacient
Absorb.	absorbent
Alk.	alkaloid
Alter.	alterative
Amenor.	amenorrhoea
Amorph.	amorphous
Antibil.	antibilious
Anthelm.	anthelmintic
Antid.	antidote
Antidysen.	antidysenteric
Antilith.	antilithic
Antimal.	antimalarial
Antiper.	antiperiodic
Antiphlegm.	antiphlegmatic
Antiphl.	antiphlogistic
Antipyr.	antipyretic
Antiscor.	antiscorbutic
Antisep.	antiseptic
Antisp.	antispasmodic
Antisyp.	antisyphillitic
Aper.	aperient
Aphrodis.	aphrodisiac
Arab.	Arabic
Arom.	aromatic
Astrin.	astringent
B.	Bengal
Bo.	Bombay State
Broncht.	bronchitis
Burm.	Burma
Carmin.	carminative
Catar.	catarrhal
Cath.	cathartic
Cholag.	cholagogue
Chr.	chronic
Constip.	constipation
Dec.	Deccan
Decoct.	decoction
Demulc.	demulcent
Deod.	deodorant
Diaphor.	diaphoretic
Diar.	diarrhoea
Digest.	digestive
Diur.	diuretic
Dysen.	dysentery
Dysmen.	dysmenorrhoea
Dyspep.	dyspepsia
Emmen.	emmenagogue
Emol.	emollient
Essen. oil.	essential oil
Expect.	expectorant
Febge.	febrifuge
Galact.	galactagogue
Glucd.	glucoside
Gonor.	gonorrhoea
H.	Hindi
Haemat.	haematuria
Haemor.	haemorrhage
Ind. Baz.	Indian Bazaars
Indign.	indigestion
Inflam.	inflammation
Irrit.	irritant
Kan.	Kanarese
Kash.	Kashmir
Lactag.	lactagogue
Laxt.	laxative
Leucor.	leucorrhoea
M.	Madras State
Mal.	Malayalam
Mat. Med.	materia medica
Menor.	menorrhagia
Mucil.	mucilage
Nep.	Nepal
Nutri.	nutritious
P.	Punjab
Pers.	Persian
Phlegm.	phlegmatic
Purg.	purgative
Refrig.	refrigerant
Resolv.	resolvent
Restor.	restorative
Rheum.	rheumatic
Rubft.	rubefacient
Ṡ.	Sanskrit
Santh.	Santhal
Sialog.	sialogogue
Sing.	Singhalese
Stim.	stimulant
Stomch.	stomachic
Subst.	substitute
Syn.	synonym
Tam.	Tamil
Tel.	Telugu
Tox.	toxic
Var.	variety
Vern.	vernacular
Vet.	veterinary
Vesic.	vesicant

GLOSSARY OF INDIAN MEDICINAL PLANTS

VERNACULAR NAMES, USES IN INDIGENOUS MEDICINE, CHEMICAL COMPOSITION AND DISTRIBUTION

Asterisks denote drugs whose investigation is likely to be useful.

ABELMOSCHUS (*Malvaceae*)

A. esculentus Moench; see **Hibiscus esculentus** Linn.

A. moschatus Medic.; see **Hibiscus abelmoschus** Linn.

ABIES (*Pinaceae*)

A. webbiana Lindl. = **A. spectabilis** (D. Don) Spach.

Nep.-*Gobra salla*; Bhutia-*Dumshing*.

Leaves—carmin., expect., stomch., tonic, astrin., used in asthma, broncht., etc.

Juice of leaves—antiper.

Essen. oil (*Ber. Schimmel u. Co., Lpz.*, 1922, 5; 1923, 3; *Indian For. Rec.*, 1922, 368).

Sikkim and Bhutan at 9,000-13,000 ft.

ABROMA (*Sterculiaceae*)

A. augusta Linn. f.

H. & B.-*Ulatkambal*; Bo.-*Olaktambol*.

Root bark—emmen., uterine tonic, in dysmen.

Roots 0·01% alk. and 0·1% water-soluble bases (*Indian J. med. Res.*, 1929, 383).

Indigenous or cultivated throughout the hotter parts of India from Uttar Pradesh to Sikkim, 3,000 ft., Khasia Hills, 4,000 ft., and Assam.

ABRUS (*Leguminosae*)

A. precatorius Linn.

S. & Bo.-*Gunja*; H.-*Ghungchi, Rati*; B.-*Kunch*; Tam.-*Gundumani*; Tel.-*Guriginja*; Mal.-*Kakani*; Kan.-*Gunji*.

Seeds—purg., emetic, tonic, aphrodis., used in nervous disorder and cattle poisoning.

Poultice of seeds—used as suppository to bring about abortion.

Root—emetic, alexiteric.

Abrin, glucd. (*Ber. dtsch. chem. Ges.*, 1903, 1142, 3003); alk. abrine and glucd. abralin (*J. Indian chem. Soc.*, 1932, 383; *Proc. nat. Acad. Sci. India*, 1934, 295); abrine less active than tryptophan (*J. biol. Chem.*, 1939, 309); tox. protein abrine (*Sem. méd., B. Aires*, 1947, II, 275; *Chem. Abstr.*, 1948, 325); white crystalline substance isolated from mother liquor after separation of abrin from seeds (*Bull. Tokyo Inst. Tech.*, 1948, 43; *Chem. Abstr.*, 1950, 4470); seeds poisonous, principal poisonous constituent abrin, a toxalbumin similar to ricin from castor seeds (Dymock, Warden & Hooper, I, 442; *J. Bombay nat. Hist. Soc.*, 1954, 90).

Throughout the greater part of India, ascending the outer Himalayas to 3,500 ft.; sometimes planted in gardens.

ABUTILON (*Malvaceae*)

A. asiaticum G. Don

H.-*Kanghi*; B.-*Potari*; Marathi-*Kangori*; Tam.-*Tutti*; Tel.-*Tutturubenda*.

Leaves—in gonor., applied to ulcers, internally for stone in the bladder and as an eye wash.

Leaves, bark and root—demulc., diur.

E. Coast, W. Peninsula.

A. avicennae Gaertn.; see **A. theophrastii** Medic.

A. glaucum Sw.

Leaves—mucilaginous, used as pectoral in La Reunion.

Fairly common in India.

A. graveolens W. & A.; see **A. hirtum** G. Don

A. hirtum G. Don

H. & B.-*Barkhanghi*; M.-*Tutti*; Tam.-*Vadattuti*; Tel.-*Belabenda*.

Leaves—demulc.

Bark—astrin., diur.

Roots—in fever.

Seeds—laxt., demulc.

Mucil., asparagin.

Uttar Pradesh, Madhya Pradesh to S. India, Sind, Baluchistan.

A. indicum (Linn.) Sw. syn. *A. indicum* G. Don

H.–*Kanghi*; B.–*Potari*; Bo.–*Kangori*; S.–*Kankati*; Tam.–*Paniyarattutti*; Tel.–*Tutturubenda*.

Leaves—demulc.

Bark—astrin, diur.

Infusion of roots—in fevers.

Seeds—aphrodis., laxt., demulc.

Mucil., asparagin (Dymock, Warden & Hooper, I, 209; *Pflanzer*, 1909, 8).

Throughout the hotter parts of India.

A. theophrastii Medic.

S.–*Jaya*; Bo.–*Nahani khapat*.

Leaves—demulc.

Bark—astrin., diur.

Roots—in fever.

Seeds—laxt., demulc.

Seeds yield 19% of a semi-drying oil (*Chem. Abstr.*, 1933, 4945).

N.W. India, Sind, Kashmir, Bengal.

ACACIA (*Leguminosae*)

A. arabica Willd.

H.–*Kikar*; B.–*Babla, Babul*; Bo.–*Babhula, Kikar*; S.–*Babbula*; Tam.–*Karu velum*; Tel.–*Nallatumma*.

Gum—in diar., dysen., useful in diabetes mellitus.

Bark—astrin., demulc.

Leaves and fruits contain tannin 32% (*Arch. Pharm., Berl.*, 1910, 171); fruit contains tannin 41·7% (*Bull. imp. Inst., Lond.*, 1930, 1).

Naturalized in all parts of India, indigenous to Sind and the Deccan.

A. caesia Willd.

H.–*Aila*; Santh.–*Kondrojanum*; Marathi–*Chilari*; Tam.–*Karijindu*; Tel.–*Kondakorinda*.

Flowers—used by Santal women in deranged courses.

Sub-Himalayan tract from the Chenab eastwards ascending to 4,000 ft. and found throughout India.

A. catechu Willd.

S.–*Khadira*; H.–*Khair*; Bo.–*Khaderi*; B.–*Kuth*; Tam.–*Karangalli*; Tel.–*Khadiramu*.

Bark—astrin.

Catechin, catechutannic acid, tannin (*Proc. chem. Soc. Lond.*, 1902, 139; 1904, 171; 1905, 398); wood contains α, β and γ-catechin (*J. Indian chem. Soc.*, 1930, 279; 1931, 143); l-epicatechin (*J. sci. industr. Res.*, 1948, 59B).

Punjab, N.W. Himalayas, Madhya Bharat, Bihar, Ganjam, throughout the Konkan, S. Mahrata Country, Deccan.

A. concinna DC.

B.–*Ban-ritha*; Bo.–*Shika*; H.–*Ritha*; S.–*Saptala*; Tam.–*Shikai*; Tel.–*Shikaya*.

Pods—aper., expect., emetic.

Leaves—cath., in biliousness.

Saponin, alk. (*Arch. Pharm., Berl.*, 1905, 247).

Tropical jungles throughout India, especially in the Deccan.

A. farnesiana Willd.

S.–*Arimaedah*; H.–*Gand-babul*; B.–*Guya-babula*; Bo.–*Deobabul*; Tam.–*Kasturivel*; Tel.–*Kasturitumma*.

Bark—astrin., demulc.

Essen. oil (*Ber. Schimmel u. Co., Lpz.*, 1901, April, 16; 1903, April, 16; 1904, April, 21); pods 23% tannin (Burkill, I, 21).

Throughout India, often planted in gardens.

A. ferruginea DC.

Nep.–*Khour*; Berar–*Sonkhair*; Bo.–*Ker*; S.–*Somasara*; Tam.–*Velvelam*; Tel.–*Ansandra*.

Bark and pods—astrin.

Gum—demulc., emol., nutrient.

Gujarat, Berar, N. Circars, Deccan, Konkan, Carnatic, eastern slopes of the W. Ghats.

A. intsia W. & A.; see **A. caesia** Willd.

A. jacquemontii Benth.

P.–*Kikar*; Bo.–*Ratobaval*.

Gum.

Plains of Punjab, Sind, Rajputana and N. Gujarat.

A. leucophloea Willd.

S.–*Shveta-barbura*; H.–*Safed kikar*; B.–*Safed babul*; Bo.–*Hewar*; Tam.–*Velvelam*; Tel.–*Tellatumma*.

Bark—astrin.

Punjab plains, Rajputana, Madhya Bharat and throughout the dry forest tracts of the peninsula.

A. modesta Wall.

P.–*Phulahi*; Bo.–*Kantosariyo*.

Gum—restor.

Sub-Himalayan tract and outer Himalayas of the Punjab from the Jumna eastwards, ascending to 4,000 ft., Salt Range, elevated portions of Sind-Sagar Doab, lower hills of Hazara.

A. pennata (Linn.) Willd.

H.–*Biswul*; Kumaon–*Agla*; Nep.–*Arfu*; B.–*Kuchui*; S.–*Ari*; Tam.–*Indu*; Tel.–*Karusikaya*.

Leaf juice—mixed with milk given to infants who suffer from indign.

Leaves—chewed with sugar and cumin in bleeding gums.

Juice of bark—antid. for snake poison.

Fruit and stem—used as a fish poison.

Central and Eastern Himalayas up to 5,000 ft., Oudh, Bengal, Bihar, Central, Western and South India. Also reported from N.W. Himalayas.

A. pycnantha Benth.

Gum; bark contains 33-36% tannin (*J. Soc. chem. Ind., Lond.*, 1917, 188).

A native of S. Australia. Experimental plantations are being raised in the Nilgiris.

A. senegal Willd.

Bo.-*Khor*; Rajputana-*Kumta*; S.-*Svetakhadira.*

Gum—demulc., emol., internally used in inflam. of intestinal mucosa, externally to cover inflamed surfaces, such as burns, sore nipples, etc.

Punjab, Rajputana, Sind, Baluchistan.

A. suma Buch.-Ham. syn. *A. suma* Kurz

B.-*Saikanta*; Mal.-*Venkarinnali*; S.-*Shami*; Tam.-*Kovil*; Tel.-*Tellachandra.*

Bark—astrin.

Yields gum.

Bengal, Bihar, W. Peninsula.

ACALYPHA (*Euphorbiaceae*)

A. fruticosa Forsk.

Deccan & Tel.-*Chinni*; Tam.-*Sinni.*

Leaves—stomch., in dyspep., alter. and attenuant.

S. India, Madras, Pondicherry, Mysore, Carnatic.

A. hispida Burm. f.

Mal.-*Vattattali.*

Flowers—considered specific in diar. and similar ailments.

Leaves—beaten up with green tobacco leaf and infusion of rice applied to inveterate ulcers.

Cultivated in Indian gardens.

A. indica Linn.

S.-*Arittanunjayrie*; H. & Bo.-*Khokali*; B.-*Muktajari*; Tam.-*Kuppaimeni*; Tel.-*Kuppaichettu*; Mal.-*Kuppamani*; Kan.-*Kuppi.*

Plant—emetic, expect., used as a subst. for senega; useful in broncht., pneumonia and asthma.

Root—cath.

Leaves—laxt., used in scabies, in snake-bite.

Acalyphine (Dymock, Warden & Hooper, III, 293); cyanogenetic glucd. and triacetonamine (*Onderstepoort J. vet. Sci.*, 1937, 193); active principle HCN and an unknown substance, extremely poisonous to rabbits; causes discoloration of blood and gastro-intestinal irritation (*Onderstepoort J. vet. Sci.*, 1937, 573; *Chem. Abstr.*, 1938, 4660, 7572, 8617).*

Throughout the plains of India as a weed.

A. paniculata Miq.

Plant—used for same purposes as *A. indica.*

S. India.

ACAMPE (*Orchidaceae*)

A. papillosa Lindl. syn. *Saccolabium papillosum* Lindl.

Bo.-*Nakuli*; Mal. & S.-*Rasna.*

Root—bitter tonic, used in rheumatism.

Alk., bitter resin (Dymock, Warden & Hooper, III, 394).

Bengal and the lower Himalayan mountains from Sikkim eastwards, Assam, Gangetic Delta, the Circars.

A. praemorsa Blatter & McCann syn. *A. wightiana* Lindl.

Mal.-*Taliyamaravada.*

Plant—bitter tonic, used in rheumatism.

Bengal, W. Peninsula.

A. wightiana Lindl.; see **A. praemorsa** Blatter & McCann

ACANTHUS (*Acanthaceae*)

A. ilicifolius Linn.

S.-*Harikusa*; H. & B.-*Harcuch kanta*; Bo.-*Nivagur*; Tam.-*Kolimulli*; Tel.-*Etichilla.*

Leaves—used as fomentation in rheumatism and neuralgia.

Plant—used in asthma.

Decoct. of plant—in dyspep.

Leaves and tender shoots—in snake-bite.

Resin, alk. (Dymock, Warden & Hooper, III, 43).

Mangroves of the Indian peninsula and Bengal.

ACER (*Aceraceae*)

A. mono Maxim. syn. *A. pictum* Thunb.

P.-*Kanzal*; U.P.-*Kanchli*; Garhwal-*Potli*; Simla-*Dhadonjra.*

Leaves—irrit.

Bark—astrin.

N.W. Himalayas from Indus to Assam, 4,000-9,000 ft., Bhutan.

A. pictum Thunb.; see **A. mono** Maxim.

ACHILLEA (*Compositae*)

A. millefolium Linn.

Bo.-*Rojmari*; H.-*Gandana*; Ind. Baz.-*Biranjasif*; Kash.-*Momadruchopandiga.*

Herb—diaphor., stim., tonic, emmen., useful in colds, obstructed perspiration and commencement of fevers.

Essen. oil, HCN-glucd. achillein (*Arch. Pharm., Berl.*, 1846, 58; 1925, 561; *Chem. Zbl.*, 1926, I, 2593; *Helv. chim. acta*, 1928, 258; *Ber. Schimmel u. Co., Lpz.*, 1929, 88); flowers—essen. oil, azulene (*Amer. J. Pharm.*, 1933, 573; *J. Amer. pharm. Ass.*, 1933, 819; 1936, 304; *Chem. Abstr.*, 1936, 4272); entire American herb contains 0·47% oil (Wehmer, II, 1232); tested on rabbits, plants found to possess weak antipyr. action (*Chem. Abstr.*, 1941, 3766).*

W. Himalayas, from Kashmir to Kumaon, 3,500-12,000 ft., especially around Simla.

A. santolina Linn.

Pushtu-*Zawal.*

Plant—tonic, carmin., used to cure stomach-ache in children, insect repellant.

Baluchistan.

ACHRAS (*Sapotaceae*)

A. sapota Linn.; see **A. zapota** Linn.

A. zapota Linn. syn. *A. sapota* Linn.

H. & B.-*Sapota*; Bo.-*Chikali*; M.-*Shimai-elluppai.*

Fruit—preventive against biliousness and febrile attacks.

Bark—tonic, febge.

Seeds—diur.

Glucd., tannin, saponin, alk. (*Amer. chem. J.*, 1891, 572; *Arch. Pharm., Berl.*, 1905, 378; 1912, 52); seed kernels 20% liquid fat (*J. Indian chem. Soc.*, 1939, 443); seed kernels 1% saponin and 0·08% bitter principle sapotinin (Wehmer, II, 936).

Cultivated more or less throughout India, largely grown in Bombay, Bengal and Madras.

ACHYRANTHES (*Amaranthaceae*)

A. aspera Linn.

H.-*Laljira*; B.-*Apang*; P.-*Kutri*; S.-*Apamarga*; Tam.-*Nayurivi*; Tel.-*Uttareni.*

Plant—pungent, purg., diur., in dropsy, piles, boils, skin eruptions, colic, snake-bite.

Infusion of roots—astrin.

Seeds—emetic, in hydrophobia (*Chem. News*, 1891, 147; *Pharm. J.*, 1888, 946).*

Throughout India up to 3,000 ft. as a weed, Baluchistan.

A. bidentata Blume

Assam-*Apamarga, Bankhat.*

Plant—diur., astrin.

Temperate and subtropical Himalayas; from Kishtwar to Sikkim, alt. 4,000-6,000 ft., Khasia Hills, alt. 4,000-6,000 ft., Bihar, Konkan, Nilgiris and Travancore hills.

ACONITUM (*Ranunculaceae*)

A. balfourii Stapf

Garhwal-*Banwa*; Nep.-*Gobari.*

Tubers—poisonous.

Air-dried roots (tubers) 1·2% total alkaloids of which pseudaconitine 0·4% (*J. chem. Soc.*, 1928, 1105); pseudaconitine highly toxic and biologically 1·5 times as active as aconitine (*Indian J. med. Res.*, 1928, 873).

Subalpine and alpine Himalayas from Garhwal to Nepal, between 7,500 and 14,000 ft.

A. chasmanthum Stapf ex Holmes

Kash.-*Banbalnag.*

Root—poisonous; subst. for *A. napellus.*

Alk. indaconitine (*J. chem. Soc.*, 1905, 1620); total alk. contents of roots about 4·3%, but the physiological activity of the alks. only 9·7 times that of aconitine (*Indian J. med. Res.*, 1928, 873); alk. aconitine (*Pharm. Zentralh.*, 1931, 145; *Chem. Zbl.*, 1931, II, 60).

Subalpine and alpine zone of the Western Himalayas, from Chitral and Hazara to Kashmir, between 7,000 and 12,000 ft.

A. deinorrhizum Stapf

Bashahr-*Mohra, Maurabikh*; P.-*Dudhia bish, Safed bikh.*

Root—poisonous.

0·9% of total alks., of which pseudaconitine is 0·4% (*J. chem. Soc.*, 1928, 1110).

Alpine Himalayas of Bashahr.

A. elwesii Stapf

Lachung-*Tukschak-gnoing.*

Root—poisonous (*Annu. Rep. bot. Gdn, Calcutta*, 1905, 115).

Alpine Himalayas of N.E. Sikkim, Naga Hills, 9,000 ft.

A. falconeri Stapf

Garhwal-*Bis, Bikh, Meetha-tellia.*

Root—poisonous.

Subalpine and alpine zone of the Himalayas of Garhwal.

A. ferox Wall.

S.-*Visha*; H. & B.-*Bish*; Bo.-*Vachnag*; M.-*Vashanavi.*

Extremely poisonous, used in leprosy, fever, cholera, rheumatism.

Tox. alk., pseudaconitine (*Indian J. med. Res.*, 1928, 873); roots become soft on soaking in cow's urine or milk and the active principles loose their depressant action on the heart and instead become stim. (*J. Bombay nat. Hist. Soc.*, 1937, 39, 717).

Alpine Himalayas of Nepal, recently collected from Assam.

A. heterophyllum Wall.

S.-*Ativisha*; H.-*Atis*; B.-*Ataicha*; M.-*Ati vadayam.*

Root—antiper., aphrodis., astrin., tonic, in diar., dyspep., cough.

Non-toxic amorphous alk. atisine 0·4% (*J. chem. Soc.*, 1896, 1518; 1933, 740); alks. atisine, dihydroatisine, heteratisine and hetisine (*C.R. Acad. Sci., Paris*, 1937, 1007; *J. biol. Chem.*, 1937, 605; 1942, 589, 605, 611); alk. atisine physiologically a relatively inactive substance (*Indian J. med. Res.*, 1945, 157).

Common in the subalpine and alpine zones of the Himalayas, from the Indus to Kumaon, from 6,000 to 15,000 ft.

A. laciniatum Stapf

Sikkim–*Kalo-bikhmo.*

Evidently poisonous, one of the sources of Calcutta Bikh.

Subalpine and alpine Himalayas of Sikkim and adjoining Tibet between 10,000 and 14,000 ft.

A. laeve Royle

Possibly poisonous.

Himalayas from Chitral to Kumaon, 5,000-12,000 ft., Piri (Balipara Frontier Tract), 10,000 ft.

A. lethale Griff.

Poisonous, believed to be the source of the celebrated ' Bhi ' or ' Bis ' poison of the Mishmis (*Annu. Rep. bot. Gdn, Calcutta*, 1905, 115).

Root contains non-poisonous alk. palmatisine.

Higher parts of the Mishmi mountains.

A. luridum Hook. f. & T.

B.–*Bish*; Bo.–*Butchnap*; H.–*Mahoor.*

Root—poisonous (*Annu. Rep. bot. Gdn, Calcutta*, 1905, 115).

Himalayas from Eastern Nepal to Chumbi, 12,000-14,000 ft.

A. moschatum Stapf

Poisonous or suspected poisonous (*Annu. Rep. bot. Gdn, Calcutta*, 1905, 115).

Eastern Kashmir, between 12,000 and 14,000 ft.

A. napellus Linn.

S.–*Visha*; H.–*Mithazahar*; B.–*Katbish.*

Alk., aconitine (*Indian J. med. Res.*, 1928, 873; *Bull. Sci. pharm.*, 1924, 330); neopelline (*Arch. Pharm., Berl.*, 1924, 553; *J. Amer. chem. Soc.*, 1936, 533; 1937, 2572); active principle decreases above 600 metres (*Mitt. naturf. Ges. Bern*, 1938, 1937; *Chem. Abstr.*, 1939, 5129).

Temperate and Arctic Europe, Asia and America.

A. palmatum D. Don

H.–*Bikhma*; Bo.–*Wakhma.*

Non-poisonous root—tonic, antiper., in diar. and rheumatism.

Rhizome—alk. palmatisine (*Bull. imp. Inst., Lond.*, 1906, 39).

Alpine Himalayas of Nepal, Sikkim, and the adjoining part of South Tibet, from 10,000 to 16,000 ft.

A. soongaricum Stapf

Roots—suspected poisonous.

Root—alk. sangorine (*J. gen. Chem., Moscow*, 1948, 515; *Chem. Abstr.*, 1948, 7940).

Alpine regions of the mountains of Gilgit.

A. spicatum Stapf

Nep. & Sikkim–*Bikh, Bish.*

Principal source of 'Bikh' or 'Bish' of Calcutta market.

Roots contain 0·4% toxic alk. bikhaconitine (*J. chem. Soc.*, 1905, 1636; *Arch. exp. Path. Pharmak.*, 1925, 131; *Proc. roy. Soc.*, 1905, 468).

Alpine zone of the Himalayas of Sikkim and Chumbi, 10,000-12,000 ft.

A. violaceum Jacq.

Sutlej basin–*Tilia kachnag, Dudhia.*

Root—poisonous according to some, non-poisonous according to others; eaten by hillmen of Kanawar as a pleasant tonic.

Alpine zone of the Himalayas from Gilgit to Kumaon, between 10,000 and 15,000 ft.

ACORUS (*Araceae*)

A. calamus Linn.

H. & B.–*Bach*; Bo.–*Vaj*; S.–*Bhadra*; Tam.–*Vashambu*; Tel.–*Vadaja.*

Rhizome—emetic, stomch., in dyspep., colic, remittent fevers, nerve tonic, in broncht., dysen. of children, insectifuge, in snake-bite.

Glucd. acorin (*Ber. dtsch. chem. Ges.*, 1888, 1912); alk. (*Arch. Pharm., Berl.*, 1886, 465); essen. oil (*Ber. dtsch. chem. Ges.*, 1901, 1021; 1902, 3187, 3195; *Ber. Schimmel u. Co., Lpz.*, 1916, 8; *J. Amer. chem. Soc.*, 1915, 2387); dry rhizomes contain 1·5-3·5% of a yellow aromatic volatile oil; essen. oil containing calamen, calamenol, calameon, asarone (*J. Indian Inst. Sci.*, 1934, 25); Indian oil has higher content of asarone than the commercial oil; besides asarone it contains small amounts of sesquiterpenes and sesquiterpene alcohols; odour of oil ascribed to an unidentified constituent (*J. Indian chem. Soc.*, 1939, 583); fresh leaves contain oxalic acid 0·078, calcium 0·006% and dry leaves contain oxalic acid 2·0, calcium 0·18% (*Chin. J. Physiol.*, 1938, 209; *Chem. Abstr.*, 1938, 9318); rhizome—insecticidal, useful against bed-bugs, moths, lice, etc. (*Indian J. Ent.*, 1942, 238).*

Throughout India and Ceylon, in marshes, wild or cultivated, ascending the Himalayas up to 6,000 ft. in Sikkim. Plentiful in the marshy tracts of Kashmir and Sirmoor, in Manipur and Naga Hills.

A. gramineus Soland

Root—stim., tonic, antisp., insecticide.

Essen. oil (*J. pharm. Soc. Japan*, 1926, 380).

Sikkim Himalayas up to 6,000 ft., Khasia Hills, 4,000-5,000 ft.

ACROCEPHALUS (*Labiatae*)

A. indicus O. Kunz.

Sindi–*Ustukudus*.

Plant—expect.

All over India ascending to 5,000 ft. in the Himalayas.

ACRONYCHIA (*Rutaceae*)

A. laurifolia Blume; see **A. pedunculata** (Linn.) Miq.

A. pedunculata (Linn.) Miq. syn. *A. laurifolia* Blume

Mal. & Tam.–*Muttanari*; Sing.–*Akenda*.

Plant—fish poison.

Bark—used as application to sores and ulcers.

Essen. oil (*Pharm. Zentralh.*, 1889, 659; *Ber. Schimmel u. Co., Lpz.*, 1912, April, 22).

Dehra Dun, Konkan, N. Kanara, W. Ghats of Madras State in hill forests up to 6,000 ft., S. Deccan slopes, N. Circars, Orissa, Sikkim, 3,000-4,000 ft., Khasia Hills up to 4,000 ft., Assam, Chittagong.

ACTAEA (*Ranunculaceae*)

A. acuminata Wall.; see **A. spicata** Linn.

A. spicata Linn.

Root—nerve sedative, emetic, purg.

Tox. principle oil of baneberry (Kirt. & Basu, I, 24); seeds contain tannin (*Chem. Abstr.*, 1929, 2596).

Temperate Himalayas from Hazara to Bhutan.

ACTINIOPTERIS (*Polypodiaceae*)

A. dichotoma Bedd.

Bo.–*Mayursikha*; H.–*Morpankhi*; S.–*Mayurshikha*.

Plant—used as a styptic and anthelm.

Throughout India, especially the Peninsula, in dry rocky places, below 4,000 ft. Common in the Nilgiris up to 2,000 ft. and in Kumaon.

ACTINODAPHNE (*Lauraceae*)

A. hookeri Meissn.

Bo.–*Pisa*; Mal.–*Malavirinya*; Marathi–*Pisha*; Tam.–*Tali*.

Infusion of leaves—in urinary disorders and in diabetes.

Seed oil—application to sprains.

Leaves contain small amount of amorphous alk., bark alk., actinodaphnine (*J. Indian chem. Soc.*, 1932, 429; *Helv. chim. acta*, 1934, 919; *Chem. Zbl.*, 1934, II, 3960); seed shells 25% of reddish brown oil, consisting largely of oleates mixed with resinates and some trilaurine (*J. Indian chem. Soc.*, 1933, 395).

Sikkim, E. and W. Ghats of S. India, Konkan, N. Kanara, Satara, Matheran, Mahabaleshwar, on the east coast in the forests of Orissa.

ADANSONIA (*Bombacaceae*)

A. digitata Linn.

H. & Bo.–*Gorakh-amli*; S.–*Gorakshi*; Tam.–*Papparappuli*; Tel.–*Simachinta*.

Fruit pulp—aper., demulc., astrin., in dysen.

Leaves—used as diaphor. and as a prophylactic against fevers in Africa.

Adansonin (Wehmer, II, 765; *J. Soc. chem. Ind., Lond.*, 1913, 778).

A native of tropical Africa, occasionally cultivated in some parts of Uttar Pradesh, Bihar, Bombay and Madras.

ADENANTHERA (*Leguminosae*)

A. pavonina Linn.

B.–*Rakta-kambal*; Bo.–*Thorligunj*; H.–*Barigumchi*; M.–*Anai-kundumani*; Tel.–*Gurivenda*.

Decoct. of leaves—in chr. rheumatism, gout, haemat.

Seeds—for boils, inflam.

Seeds contain HCN-glucd., lignoceric acid (*J. Indian Inst. Sci.*, 1928, 173); leaves contain alk. (*Curr. Sci.*, 1947, 344; *Chem. Abstr.*, 1948, 2729).

Eastern sub-Himalayan tract, W. Ghats, Andamans. Often planted along roadsides, especially in S. India.

ADENIA (*Passifloraceae*)

A. palmata Engl.

Konkani–*Undal*; Mal.–*Mutakku*; Tel.–*Modikka*.

Root and fruit—poisonous.

Juice of leaves and roots—used externally for skin diseases in Ceylon.

Konkan, N. Kanara, hills of Carnatic, W. Ghats, western coast.

A. wightiana Engl. syn. *Modecca wightiana* Wall.

HCN (*Bull. Sci. pharm.*, 1906, 613; Wehmer, II, 806).

Hill tracts of the Deccan and Carnatic from N. Arcot southwards.

ADENOSTEMMA (*Compositae*)

A. lavenia O. Kuntze syn. *A. viscosum* Forst.

In La Reunion leaves used as antisp. and fresh juice as a stim. and sternutatory.

Throughout India.

ADHATODA (*Acanthaceae*)

A. vasica Nees

S.–*Vasaka*; H. & Bo.–*Adulasa*; B.–*Bakas*; Tam.–*Adadodai*; Tel.–*Adasaramu.*

Leaves and roots — in cough, chr. broncht., asthma, phthisis.

Leaves—used in rheumatism, insecticidal.

Flowers, leaves and roots—antisp.

Leaves — alk. vasicine and small amount of essen. oil (*J. Indian chem. Soc.*, 1924-25, 315; 1927, 541); therapeutic properties attributed to vasicine and the essen. oil (*Indian J. med. Res.*, 1925, 205); leaves—vasicine (*J. chem. Soc.*, 1932, 2740); contains 1-peganine (1-vasicine); same as synthetic 1-peganine (*Ber. dtsch. chem. Ges.*, 1936, 384); leaves and roots — antisp., efficacious in coughs (*Central Indigenous Drugs Comm.*, 1909, 35); drug useful as expect. and mild bronchial antisp., but of no value in tuberculosis (*Indian J. Pharm.*, 1940, 141).

Throughout the plains of India, and in the sub-Himalayan tracts up to 4,000 ft.

ADIANTUM (*Polypodiaceae*)

A. aethiopicum Linn. = **A. emarginatum** Bedd.

Infusion of leaves—used as emol. in coughs and diseases of chest.

N. Kanara, Nilgiris and Pulneys, at the higher elevations.

A. capillus-veneris Linn.

H.–*Hansraj*; Kash.–*Dumtulli*.

Used as demulc., expect., diur., emmen., tonic, febge.

Common in S. India, in Bombay and Madras States, particularly on the west side up to 5,000 ft. and on the mountains, N. India.

A. caudatum Linn.

S.–*Mayurashikha*; P.–*Adhsarita-kajari.*

Fronds—for skin diseases, diabetes, cough and fever.

Throughout India, in the plains and lower slopes of the hills.

A. flabellulatum Linn.

Herb—used as medicine for cough.

Rhizome—anthelm.

Nepal, Assam, Khasia, Sylhet.

A. lunulatum Burm.

H. & B.–*Kali-jhant*; Bo.–*Hansraj*; S.–*Hansavati*.

Used in fever and erysipelas.

Throughout N. India in moist places, S. India very general on western side in the plains and lower slopes of hills.

A. pedatum Linn.

English—*Canadian Maidenhair.*

Plant employed in France and N. America as a pectoral in chr. catarrh., demulc., expect., tonic, astrin., emmen.

N.W. Himalayas, from Kashmir to Sikkim, 6,000-9,000 ft.

A. tenerum Sw.

Plant—demulc., expect., sudorific.

Found in Mexico and the West Indian Islands, southwards to Juan Fernandez and Peru. One solitary specimen was collected in Sion Wood, Bombay Island, by Blatter and d'Almeida, and regarded as an escape from cultivation.

A. venustum G. Don

H.–*Hansraj*; Bo.–*Mubarak*; S.–*Hansapadi*; Tam.–*Mayirsikhi.*

Fronds—tonic, resolv., expect., diur., emmen., astrin., emetic, in scorpion-sting.

N.E. Himalayas, 3,000-10,000 ft., very common in Simla.

ADINA (*Rubiaceae*)

A. cordifolia (Roxb.) Benth. & Hook. f.

S.–*Dharakadamba*; H.–*Haldu*; B.–*Keli kadam*; Tam. & Mal.–*Manja kadamba*; Tel.–*Pasupu-kadamba.*

Bark—febge., antisep.

Juice—used to kill worms in sores.

Bark—7·27-9·27% tannin [*For. Bull. Dehra Dun* (*N.S.*), No. 42, 1921, 5]; 0·09% yellow pigment adinin (*J. Indian chem. Soc.*, 1935, 257).

From the Himalayas to Central and S. India, especially common in E. Ghats, Mysore and parts of Konkan.

ADINOBOTRYS (*Leguminosae*)

A. atropurpureus Dunn. syn. *Millettia atropurpurea* Benth.

Burm.–*Danyinnie.*

Root—fish poison.

Saponin, glucd. (*Ber. dtsch. chem. Ges.*, 1890, 3538; *Pharm. Zentralh.*, 1892, 742).

Malay Peninsula, Tenasserim.

ADONIS (*Ranunculaceae*)

A. aestivalis Linn.

Plant—used as cardiac stim. and diur. in Europe, poisonous to horses.

Flowers—considered laxt., diur., lithothriptic.

Amorphous glucd. (*Arch. Pharm., Berl.*, 1896, 452); herb contains 0·216% of a glucd. which resembles adonidin but is weaker in physiological action (Wehmer, I, 323).

W. Himalayas, from Kumaon to Kashmir, Hazara and Peshawar. A weed of cultivation.

A. chrysocyathus Hk. f. & Thoms.

Suspected poisonous to sheep and goat.

Western alpine Himalayas, in Chamba, Kashmir and Western Tibet.

AEGICERAS (*Myrsinaceae*)

A. corniculatum Blanco syn. *A. majus* Gaertn.

H.–*Halsi*; B.–*Khalshi*; Tam.–*Narikandam*; Tel.–*Dudumara*.

Bark—fish poison.

Bark 7·8% saponin, some resin, a caoutchouc-like substance and a crystalline compound (*Chem. Abstr.*, 1931, 230; Wehmer, II, 925).

Both sides of the Deccan peninsula, Sunderbans, Andamans.

A. majus Gaertn.; see **A. corniculatum** Blanco

AEGLE (*Rutaceae*)

A. marmelos Corr.

S.–*Bilva, Shriphala*; H., B. & Bo.–*Bel*; Tam.–*Villuvam*; Tel.–*Maredu*.

Pulp of ripe fruit—arom., cooling, laxt.

Unripe or half-ripe fruit—astrin., digest., stomch., in diar.

Root bark—in intermittent fevers, fish poison.

Fruit contains marmalosin which is the active constituent (*J. Indian chem. Soc.*, 1930, 759; 1932, 271); marmalosin identical with imperatorin (*Ber. dtsch. chem. Ges.*, 1937, 1021); young bark—coumarin 0·03%, alk. 0·003% and umbelliferone; old bark—umbelliferone and coumarin 0·6%; Bihar bark—alk. (*Curr. Sci.*, 1943, 209); mature bark of Bihar variety gave 0·3% alk., alk. aegelenine identical with fagarine isolated from *Zanthoxylum coco* Gill. ex Hook. & Arn. syn. *Fagara coco* Engl. (*J. Indian chem. Soc.*, 1944, 401); leaves—essen. oil consisting of α- and β-phellandrene (*J. Indian chem. Soc.*, 1949, 231); matured bark—γ-fragrine 0·3%, umbelliferone 0·6% and marmesin 0·6% (*J. Amer. chem. Soc.*, 1949, 606; *Chem. Abstr.*, 1949, 2993; *J. Indian chem. Soc.*, 1951, 19; *Chem. Abstr.*, 1951, 9221).*

Wild in the sub-Himalayan tract, Central and S. India. Often planted all over India.

AERVA (*Amaranthaceae*)

A. lanata Juss.

S.–*Astmabayda*; H. & B.–*Chaya*; P.–*Buikallan*; Tam.–*Sirupulai*; Tel.–*Pindikumda*.

Plant—anthelm., diur.

Root—demulc., diur., in the treatment of headache (*Apothekerztg, Berl.*, 1895, 346).

Throughout the plains of India ascending to 3,000 ft. in the hills.

A. tomentosa Forsk.

Jhalawan–*Bal*; Tam.–*Perumbulai*; Tel.–*Magbira*.

Decoct. of the plant—used to remove swellings.

Punjab, Madhya Bharat, Baluchistan, Sind, Gujarat, Khandesh, Deccan, Carnatic.

AESCULUS (*Hippocastanaceae*)

A. hippocastanum Linn.

P.–*Pu*.

Fruit and bark—antiper.

Extract of leaves—in whooping-cough.

Saponin (*C.R. Acad. Sci., Paris*, 1907, 1431; *Mh. Chem.*, 1910, 657; *Bull. Sci. pharm.*, 1918, 65; *Helv. chim. acta*, 1934, 43; *Jb. wiss. Bot.*, 1937, 710; *Chem. Abstr.*, 1938, 9177); seeds—much variable amount of saponin, maximum being 10% (*Seifensiederztg*, 1941, 35; *Chem. Abstr.*, 1941, 3032).*

Occasionally cultivated in N. India as an ornamental tree.

A. indica Colebr.

H. & P.–*Bankhor*; Kash.–*Hanudun*.

Fruits—given to horses in colic.

Oil from seeds—applied externally in rheumatism.

N.W. Himalayas, from the Indus to Nepal, between 4,000 and 10,000 ft., on hill-tops of Kashmir, Punjab, Uttar Pradesh.

AFRAMOMUM (*Zingiberaceae*)

A. melegueta (Rosc.) K. Schum. syn. *Amomum melegueta* Rosc.

Seeds—carmin. for cattle.

Essen. oil (*Ber. Schimmel u. Co., Lpz.*, 1915, April, 38; *J. Amer. chem. Soc.*, 1917, 1466).

Cultivated to a small extent in Indian gardens. A native of tropical Africa.

AGANOSMA (*Apocynaceae*)

A. calycina A. DC.

S.–*Malati*; Tel.–*Palamalle*.

Plant—tonic, useful in diseases caused by disordered bile and blood.

Burma.

A. caryophyllata G. Don; see **A. dichotoma** (Roth) K. Schum.

A. dichotoma (Roth) K. Schum.

S., H., B. & Tel.–*Malati*.

Plant—emetic.

Leaves—in biliousness.

Flowers—in diseases of the eye.

Lower Bengal, Monghyr, N. Circars, E. Deccan and Carnatic from Ganjam to the Rumpa Hills and the Nellore Veligondas.

A. marginata G. Don

Decoct. of root—for urinary troubles, tonic for fever, emmen.

Sylhet, Chittagong.

AGARICUS (*Agaricaceae*)

A. campestris Linn.; see **Psalliota campestris** (L.) Fries

A. igniarius

Kash.-*Bulgar jangli*; P.-*Kiain*; H.-*Gorigond.*

Used internally as a bitter tonic and laxt., externally as a styptic.

A. ostreatus (Jacq.) Fries

Cutch & Bo.-*Phanasa-alambe.*

Ground to a paste with water and applied to gums in excessive salivation and stomatitis, internally given in dysen. and diar., used to stop haemorrhage.

AGATI (*Leguminosae*)

A. grandiflora Desv.; see **Sesbania grandiflora** Pers.

AGAVE (*Amaryllidaceae*)

A. americana Linn.

H. & S.-*Kantala*; B.-*Jungli anaras*; P.-*Wiliyatikaitalu*; Tam.-*Alagai.*; Tel.-*Kittanara.*

Roots—diur., diaphor., antisyp.

Juice of leaves—laxt., diur., emmen., useful in scurvy.

Plant—fish poison.

Saponins (Dragendorff-Heilpflanzen, 1898, 134); fresh leaves—saponin (*Bull. Soc. Chim. biol., Paris*, 1945, 618; *Chem. Abstr.*, 1946, 6209).*

Planted in parks and large gardens in India. A native of America.

A. angustifolia Haw.

S.-*Kantala*; H.-*Khetki*; Tam.-*Malaikkattalai*; Tel.-*Kittanara.*

Roots—diur., diaphor.

Juice of leaves—applied to bruises.

Naturalized in the sub-Himalayan tract and the outer Himalayas and many other parts of India.

A. vera-cruz Mill.

Nasirabad-*Kuwarbuti.*

Plant—purg.

Naturalized throughout India, common in Assam, Bengal, Bihar, Bombay and S. India.

A. vivipara Wight; see **A. angustifolia** Haw.

A. wightii Drummond & Prain; see **A. angustifolia** Haw.

AGERATUM (*Compositae*)

A. conyzoides Linn.

B.-*Dochunty, Uchunti*; Bo.-*Osari*; Tam.-*Pum-pillu.*

Juice of root—antilith.

Leaves—styptic, applied to cuts and sores and externally in ague.

Leaves and flowers yield 0·02% essen. oil with powerful nauseating odour (*J. Indian chem. Soc.*, 1925, 273); essen. oil containing phenols (eugenol) 5%; a phenol ester with powerful agreeable odour (*Parfum. mod.*, 1937, 25; *Chem. Abstr.*, 1937, 2749); oil from African species agreeable, consisting almost entirely of a phenolic ester similar to ethyl eugenol (*Chem. Abstr.*, 1937, 2650).

Throughout India up to 5,000 ft.

AGLAIA (*Meliaceae*)

A. odorata Lour.

Flowers and leaves regarded medicinal in Malaya (Burkill, I, 75).

A Malayan species occasionally cultivated in Indian gardens.

A. roxburghiana Miq.

B., H. & S.-*Priyangu*; Tam.-*Chokkala*; Tel.-*Yerra aduga.*

Fruit—cooling, astrin., in inflam. and leprosy.*

Mt. Abu, Konkan, S. Mahrata country, Deccan, N. Kanara, W. Ghats in S. Kanara and Malabar, Travancore, Tinnevelly.

AGRIMONIA (*Rosaceae*)

A. eupatoria Linn.

Root—astrin., tonic, diur.

Leaves—anthelm.

Essen. oil (Dragendorff-Heilpflanzen, 280); a dye (*Chem. Abstr.*, 1937, 6883).

Temperate Himalayas, from Murree and Kashmir to Sikkim, 7,000-10,000 ft., Khasia Hills, 4,000-6,000 ft.

AGROPYRON (*Gramineae*)

A. repens Beauv.

Rhizome—diur., demulc., aper., used internally as a demulc. drink for irritable bladder and in cystitis.

Essen. oil, glucd. (*C.R. Acad. Sci., Paris*, 1897, 797; *Ber. Schimmel u. Co., Lpz.*, 1922, 55); two glycosides (Trease, 1945, 132).

Kashmir and W. Tibet, 8,000-14,000 ft.

AILANTHUS (*Simarubaceae*)

A. altissima (Mill.) Swingle syn. *A. glandulosa* Desf.

English-*Ailanto.*

Bark—anthelm., in dysen., parasiticide.

Bitter substance ailanthin (*Mh. Chem.*, 1927, 479); leaves—essen. oil (*Ber. Schimmel u. Co., Lpz.*, 1934, 5); bark—bitter principle ailanthin, saponin (*Pharm. Pr.*, 1933, 120; *Chem. Zbl.*, 1934, I, 1673); wood—resinous matter, tannins, hydrocarbons, saponin, quassin, quercetin and vanillin (0·1-0·15%); subst. for quassia (*Fitoterapia*, 1938, 61; *Chem. Abstr.*, 1938, 8473).

Cultivated in the hills of the Punjab.

A. excelsa Roxb.

H. & Marathi–*Maharukha*; S.–*Mahanimba*; Tam.–*Peruppi*; Tel.–*Peddamanu*; Mal.–*Mattipongilyam*.

Bark—arom., used for dyspeptic complaints, tonic, febge., expect., antisp., given in chr. broncht. and asthma, used as astrin. in diar. and dysen.

Bark and leaves—tonic, used especially in debility after child-birth.

Ailantic acid (*Pharm. J.*, 1895, 345).

Bihar, Chota Nagpur, Madhya Pradesh, forests of Ganjam, Vizagapatam and Deccan.

A. glandulosa Desf.; see **A. altissima** (Mill.) Swingle

A. malabarica DC.

Marathi–*Guggula-dhup*; Tel.–*Maddipalu*; Tam.–*Perumaram*.

Bark—carmin., tonic, febge.

Resin—in dysen.

Juice of fresh bark—in dysen.

Quassin, ailantic acid (*Pharm. J.*, 1895, 345).

Konkan, Deccan, W. Ghats from N. Kanara and Mysore to Travancore, up to 5,000 ft. Often planted in S. India.

AJUGA (*Labiatae*)

A. bracteosa Wall. ex Benth.

Kumaon–*Ratpatha*; Jhelum–*Kauributi*.

Plant—bitter astrin., arom. tonic, useful in agues.

Leaves—in fever as subst. for cinchona.

W. Himalayas from Kashmir to Nepal up to 7,000 ft., Punjab Plain along the base of the hills, Upper Gangetic Plain, Kumaon.

ALANGIUM (*Alangiaceae*)

A. kurzii Craib. syn. *Marlea tomentosa* Endl.

B.–*Marlea*.

Alk. (*Ber. dtsch. pharm. Ges.*, 1899, 214).

Throughout Northern India, alt. 1,000-6,000 ft., common from Punjab to Bengal.

A. lamarckii Thwaites; see **A. salviifolium** (Linn. f.) Wang.

A. salviifolium (Linn. f.) Wang. syn. *A. lamarckii* Thwaites

S.–*Ankota*; H.–*Akola*; B.–*Akar kanta*; Bo.–*Ankola*; Mal.–*Irinjil*; Tel.–*Ankolamu*; Tam.–*Alangi*.

Root bark—purg., anthelm., useful in fever and skin diseases.

Leaves—as poultice in rheumatic pains.

Amorphous alk. alangine (*Chem. Zbl.*, 1893, 399); bark—0·8% amorphous alk. alangine, in small doses the alk. reduces blood pressure temporarily, depresses the heart and produces irregular respiration, increases peristaltic movement of the intestines (*Indian J. med. Res.*, 1934, 507); bark—alks. akharkantine, akoline, lamarkine (*Indian J. Pharm.*, 1950, 98); seeds contain 0·2% alks. (*J. Mysore Univ.*, 1942, 113; *Proc. Indian Acad. Sci.*, 1942, 328); root bark contains two isomeric alks., alangium A (0·15%) and alangium B (0·10%), and a third alk. alanginine (0·001%) (*Proc. nat. Acad. Sci. India*, 1948, 1; *Chem. Abstr.*, 1951, 10, 489).

Throughout the drier parts of India, grows vigorously in the forests of S. India.

ALBIZZIA (*Leguminosae*)

A. amara Boivin

S.–*Krishna sirisha*; Bo.–*Lallei*; Tam.–*Turinjil*; Tel.–*Sigara*.

Seeds—astrin., given in piles, diar. and gonor.

Flowers—externally applied to inflam., boils and ulcers.

Leaves—useful in ophthalmia.

Saponin (Dragendorff-Heilpflanzen, 289).

Throughout S. India in dry forests, N. Circars, Deccan and Carnatic to S. Travancore up to 3,000 ft. and in few localities in Madhya Pradesh. Sometimes grown as avenue tree.

A. chinensis (Osbeck) Merr. syn. *A. stipulata* Boivin

B.–*Amluki, Chaku*; Bo.–*Udala*; H.–*Kanujera, Siran*; Mal.–*Mottavaka*; Tam.–*Katturinjil, Pilivagai*; Tel.–*Chinduga*.

Infusion of bark—used as a lotion for cuts, scabies and skin diseases.

Plant—fish poison.

Gum, saponin (Wehmer, I, 485).

Throughout India, ascending to an altitude of 4,000 ft. in the Himalayas.

A. julibrissin Durazz.

B.–*Kalkora*; H.–*Lal siris*; P.–*Sirin*; Tam.–*Selaivagai*; Tel.–*Nallasinduga*.

Properties similar to *A. lebbeck*.

Saponin (*J. pharm. Soc. China*, 1943, 17; *Chem. Abstr.*, 1945, 3118).

Outer Himalayas from the Indus eastwards to Sikkim, ascending to 6,000-7,000 ft.

A. lebbeck Benth.
S.–*Shirisha*; H., B. & Bo.–*Siris*; Tam.–*Vagai*; Tel.–*Dirasana.*
Plant—in snake-bite and scorpion-sting.
Bark and seeds—astrin., given in piles and diar., tonic, restor.
Root bark—in powder form used to strengthen gums.
Leaves—in night-blindness.
Gum, saponin and tannin (Wehmer, I, 485).
Throughout India, ascends to 4,000 ft. in the Himalayas, usually planted.

A. odoratissima Benth.
H.–*Kala siris*; B.–*Kakur siris*; Marathi–*Chikunda*; Tam.–*Karuvagei*; Tel.–*Chinduga*; S.–*Svetashirisha.*
Bark—applied externally is considered efficacious in leprosy and inveterate ulcers.
Leaves—boiled in ghee used as remedy for cough.
Gum (Wealth of India, I, 44).
Throughout India, up to 5,000 ft. in the sub-Himalayan tract.

A. procera (Roxb.) Benth.
H.–*Safed siris*; B.–*Kori*; Bo.–*Kinai, Tihiri*; Marathi–*Kinhai*; Tam.–*Kondavagei*; Tel.–*Tellachinduga.*
Leaves—insecticide, made into poultice applied to ulcers.
Sub-Himalayan tract from the Jumna eastwards, Bengal, Bihar, Orissa, Madhya Pradesh, Bombay State and South India. Occasionally planted as ornamental or roadside tree.

A. stipulata Boivin; see **Albizzia chinensis** (Osbeck) Merr.

ALEURITES (*Euphorbiaceae*)

A. moluccana Willd.
S.–*Akshota*; B., Bo. & H.–*Jangli akhrot*; Tam.–*Nattakkarottu*; Tel.–*Natakrotu.*
Oil from seeds—purg., subst. for castor oil.
Seeds—fixed oil; skin of fruit—essen. oil (*Bull. imp. Inst., Lond.*, 1920, 25); essen. oil 0·3% (*Philipp. J. Sci.*, 1930, 251; *Chem. Zbl.*, 1930, II, 2711).
Grown in various parts of India, especially in S. India. Wild in S. India (Wynaad) and Assam.

ALHAGI (*Leguminosae*)

A. camelorum Fisch.; see **A. pseudalhagi** (Bieb.) Desv.

A. maurorum Baker; see **A. pseudalhagi** (Bieb.) Desv.

A. pseudalhagi (Bieb.) Desv. syn. *A. camelorum* Fisch.; *A. maurorum* Baker
B.–*Dulal-labah*; H.–*Jawasa*; Pers.–*Kharebuz*; S.–*Durlabha*; Tel.–*Tellaginiya.*
Plant—laxt., diur., expect.
Infusion—diaphor.
Oil from leaves—used for rheumatism.
Flowers—used for piles.
Manna (*Pharm. J.*, 1912, 391; *J. chem. Soc.*, 1885, 943; *J. Amer. chem. Soc.*, 1918, 1456; *Chem. Abstr.*, 1937, 3104).
S. Mahrata Country, Gujarat, Sind, Baluchistan, Punjab, Uttar Pradesh, Rajputana.

ALLAMANDA (*Apocynaceae*)

A. cathartica Linn.
Bo.–*Jaharisontakka.*
Leaves—cath.
Bark—hydragogue in ascites.
Alk., glucd. (Dymock, Warden & Hooper, II, 418).
Widely grown in Indian gardens. Sometimes found run wild all along backwaters in Travancore.

ALLIARIA (*Cruciferae*)

A. officinalis Andrzej.
Herb and seeds—esteemed as diur., diaphor., and expect., and used as external application in gangrenous affections, and to promote suppuration, healing of cuts, bruises and ulcers.
Glucd. myrosin, sinigrin, essen. oil.
W. Himalayas from Kumaon to Kashmir, 6,000-10,000 ft.

ALLIUM (*Liliaceae*)

A. ampeloprasum Linn. (*A. porrum* Linn.)
Arab.–*Kirath*; B.–*Paru.*
Bulbs—stim., expect., used to hasten suppuration of boils.
As (*C.R. Acad. Sci., Paris*, 1903, 202; 1912, 893); essen. oil with allyl disulphide as the main ingredient (U.S.D., 1505).
Cultivated in India as a garden crop.

A. ascalonicum Linn.
H.–*Ek-kanda-lasun, Gandana*; B.–*Gundhun.*
Bulb—aphroids., in earache.
Cultivated in Indian gardens.

A. cepa Linn.
S.–*Palandu*; H.–*Piyaz*; B.–*Piyaj*; Bo.–*Kanda*; Tel.–*Nirulli*; Tam.–*Irulli, Vengayam.*
Bulbs—stim., diur., expect., aphrodis., emmen., in flatulence and dysen.

Essen. oil and organic sulphides (*Pharm. Ztg, Berl.*, 1903, 315; *Ber. Schimmel u. Co., Lpz.*, 1889, April, 44; *Arch. Pharm., Berl.*, 1892, 434); scales contain catechol and protocatechuic acid (*J. biol. Chem.*, 1933, 379; *Chem. Zbl.* 1933, II, 3299); essen. oil 0·05% of whole plant (*Parfums de Fr.*, 1937, 228; *Chem. Abstr.*, 1938, 727); contains a heart stimulant, increases pulse volume and frequency of systolic pressure and coronary flow, stimulates intestinal smooth musculature and uterus, promotes bile production and reduces blood sugar (*Merck's Jber.*, 1936, 102; *Chem. Abstr.*, 1937, 3149); chief constituent of the crude oil is allyl propyl disulphide (*J. agric. Res.*, 1935, 847); fresh expressed juice moderately bactericidal (*Chem. Abstr.*, 1941, 2627, 2552).

Extensively cultivated all over India.

A. leptophyllum Wall.
Bulbs—sudorific.
Punjab and Western Himalayas, alt. 1,500-8,000 ft., from Kashmir to Kumaon.

A. macleanii Baker
Ind. Baz.–*Badsah salap*.
Bulb—neutral saponin (*Chem. Zbl.*, 1931, I, 3026).
Afghanistan.

A. porrum Linn.; see **A. ampeloprasum** Linn.

A. sativum Linn.
S.–*Lashuna*; H., B. & Bo.–*Lasan, Lasun*; Tam.–*Vellaipundu*; Tel. & Mal.–*Velluli*.
Bulb—carmin., aphrodis., expect., stim., in fevers, coughs, febge. in intermittent fevers.
Juice—used as rubft. in skin diseases and as ear drops in earache, useful in atonic dyspep., flatulence and colic.
Bulbs yield 0·06-0·1% essen. oil containing allyl propyl disulphide, diallyl disulphide and two more sulphur compounds (Parry, 92) antisep. and hypotensive principle (*Rev. esp. Fisiol.*, 1946, 6); allicin (*J. Amer. chem. Soc.*, 1944, 1950); allisatin I and allisatin II (*J. sci. industr. Res.*, 1948, 42B).
Widely cultivated in India.

A. schoenoprasum Linn.
Properties same as of *A. cepa*.
W. Himalayas from Kashmir to Kumaon, 8,000-11,000 ft. Grown as a garden crop.

A. tuberosum Roxb.
B.–*Bunga-ghunduna*.
Seeds—given in spermatorrhoea.
W. Himalayas, Khasia Hills, apparently wild. Cultivated in Bengal.

ALLOPHYLUS (*Sapindaceae*)

A. serratus Radlk.
Marathi–*Tipani*; Mal.–*Mukkanamperu*; Tam.–*Amalai*; Tel.–*Eravalu*.
Root—astrin. employed to check diar.
Assam, Sylhet, E. and W. Peninsula.

ALNUS (*Betulaceae*)

A. nepalensis D. Don
H. & Nep.–*Udis*; P.–*Kohi*.
Bark—7% tannin (*Indian For. Leafl.*, No. 72, 1944).
Throughout the Himalayas, from Kashmir eastwards to the Khasia Hills in Assam, and southwards to Kachin Hills in Burma.

A. nitida Endl.
P.–*Saroli*; Kumaon–*Paya*.
Bark—tannin (Wehmer, I, 232; *Indian For. Leafl.*, No. 72, 1944).
From the Jumna westwards to Kashmir in the Himalayas, between 3,000 and 9,000 ft.

ALOCASIA (*Araceae*)

A. denudata Engl.
Malaya–*Keladi*.
Acrid juice—used as a poison by the Malays.
Malay Peninsula.

A. indica Schott
S.–*Manaka*; H.–*Mankanda*; B. & Assam–*Mankachu*.
Leaves—styptic, astrin.
Tuber—in piles, constip. and anasarca.
Cultivated in Assam and Bengal.

A. macrorrhiza Schott
S.–*Hastikarni*; Assam–*Boromankachu*.
Root—laxt., diur., in scorpion-sting.
Tropical and subtropical India, wild and cultivated.

A. montana (Roxb.) Schott
Root—used to poison tigers.
Mountains of N. Circars, probably also in the mountains of Puri and Mayurbhanj.

ALOE (*Liliaceae*)

A. abyssinica Lam.
Leaves—emol., cath.
Aloin 13·6% (*Arch. Pharm., Berl.*, 1905, 399; *J. Pharm. Chim., Paris*, 1907, 476); analysis gave H_2O 6·63, H_2O extract 68·21, resin 25·16, aloin 19·3, aloe-emodin 0·261, ash 1·46% (*Arch. Farmacol. sper.*, 1941, 185; *Chem. Abstr.*, 1941, 4547).
A native of Abyssinia and Central Africa. Kathiawar coast.

A. barbadensis Mill. syn. *A. vera* Tourn. ex Linn.

S. & B.–*Ghrita kumari*; H.–*Ghi kanvar*; Tam.–*Chirukattali, Kattalai*; Tel.–*Chinna-kata banda*; Mal.–*Kumari.*

Plant—stomch., purg., emmen., anthelm., in piles and rectal fissures.

Dried juice—cath., given in constipation.

Fresh juice—cath., cooling, useful in fevers.

Pulp—in menstrual suppressions.

Root—in colic.

Aloin, isobarbaloin, emodin (*Arch. Pharm., Berl.*, 1898, 200; *Bull. Soc. Chim. Paris*, 1899, 668; 1900, 787; *Arch. Pharm., Berl.*, 1903, 346); gum, resin; juice contains anthraquinone derivatives like emodin and chrysophanic acid (*Arch. Pharm., Berl.*, 1938, 348); whole leaf, rind and pulp contain uronic acid, oxidase, catalase and sugars (*J. Amer. pharm. Ass.*, 1941, 262); aloe contains a crystalline glycoside barbaloin (I.P.C., 11).

Planted in Indian gardens. Many of the forms of this species are naturalized in India and are found in a semi-wild state in all parts from the dry westward valleys of the Himalayas up to Cape Comorin.

A. indica Royle; see **A. barbadensis** Mill.

A. littoralis Koening; see **A. barbadensis** Mill.

A. perryi Baker

Plant—stomch., tonic, purg., useful in dyspep., jaundice, amenor.

Barbaloin, socaloin (*Ber. dtsch. chem. Ges.*, 1870, 1604; *Arch. Pharm., Berl.*, 1898, 200).

Island of Socotra.

A. succotrina Lam.

Uses same as of *A. abyssinica.*

Aloin, barbaloin (*Ber. dtsch. chem. Ges.*, 1875, 1600; *Arch. Pharm., Berl.*, 1898, 200; *C.R. Acad. Sci., Paris.*, 1914, 185, 1189).

Indigenous to S. Africa.

A. vera Tourn. ex Linn.; see **A. barbadensis** Mill.

ALPHONSEA (*Annonaceae*)

A. ventricosa Hook. f. & Th.

Plant—poisonous.

Leaves contain 0·5% of an alk. (Wehmer, I, 344).

Assam, Chittagong, Andamans.

ALPINIA (*Zingiberaceae*)

A. allughas Rosc.

B.–*Taro*; S.–*Taraka*; Mal.–*Malayinjikuva.*

Properties and uses as of *A. galanga.*

S. Konkan.

A. calcarata Rosc.

Uriya–*Toroni.*

Subst. for *A. galanga.*

Cultivated in the Konkan.

A. galanga Willd.

H. & B.–*Barakulanjan*; S.–*Sugandha vacha*; Bo.–*Baripankijar*; Tam.–*Perarattai*; Tel.–*Peddadumparashtram.*

Rhizomes—used in rheumatism, fever and catar. affections, specially in bronchial catarrh, stomch., stim., aphrodis., carmin., used as flavouring agent.

Essen. oil (*Ber. Schimmel u. Co., Lpz.*, 1910, Oct., 138; 1911, April, 19); useful in respiratory troubles, specially of children (Chopra, 277).

Mainly in the Eastern Himalayas and south-west India.

A. khulanjan M. Sheriff

Vern.–*Khulanjan.*

Rhizomes—stim., carmin., stomch., expect.

Essen. oil (*Ber. Schimmel u. Co., Lpz.*, 1890, April, 21; *Pharm. J., Trans.*, 1884, 208).

Cultivated in gardens of Madras.

A. malaccensis Rosc.

Tam.–*Saliyeridumpa.*

Rhizomes—used in Java for sores.

Fruits—with little salt used as emetic.

Plant—enters into the composition of Malayan " ipoha ".

Essen. oil (Wehmer, I, 180).

Himalayas, E. and W. Ghats, hills of Bengal and Assam.

A. nutans Rosc.; see **A. speciosa** Schum.

A. officinarum Hance

H.–*Kulinjan*; B.–*Sugandha bacha.*

Rhizomes—stomch., stim., carmin.

Essen. oil, galangin (*Pharm. J., Trans.*, 1884, 208); essen. oil (*Ber. Schimmel u. Co., Lpz.*, 1890, April, 21; *Gazz. chim. ital.*, 1900, 327).

A native of China.

A. speciosa Schum. syn. *A. nutans* Rosc.

B.–*Punnag champa*; Tam.–*Sittarattai.*

Uses same as of *A. galanga.*

Essen. oil (*Ber. Schimmel u. Co., Lpz.*, 1899, April, 53; *J. Soc. chem. Ind., Lond.*, 1917, 995).

A native of north-eastern India and Burma. It is also cultivated in gardens.

ALSTONIA (*Apocynaceae*)

A. scholaris R. Br.

S.–*Sapta parna*; H.–*Chatiun*; B.–*Chhatim*; Tel.–*Edakulapala*; Tam. & Mal.–*Pala.*

Bark—bitter tonic, alter., febge., in malaria, useful in diar. and dysen., in snake-bite.

Milky-juice—applied to ulcers.

Echitenine, ditamine, echitamine, echitamidine (*J. chem. Soc.*, 1925, 1640); total alk. content of Indian bark 0·16-0·27% (*J. chem. Soc.*, 1932, 2626); drug is of value as a febge. (Komau, 12); total alk. or tincture has little or no action in malaria (*Indian med. Gaz.*, 1942, 723; 1944, 408; *Chem. Abstr.*, 1943, 3877; *Indian J. vet. Sci.*, 1943, 328); 0·5% echitamine in Mysore bark (*J. Mysore. Univ.*, 1945, 63).

Throughout the moist regions of India, especially in the W. coast forests.

A. spectabilis R. Br.

Alks. alstonamine, ditamine, echitamine, echitenine (*Ber. dtsch. chem. Ges.*, 1878, 1546; *Liebigs Ann.*, 1880, 144; 1886, 253).

A large evergreen tree in tropical forests of the Andamans.

A. venenata R. Br.

S.–*Rajaadana*; M.–*Pazhamunnipala*; Kan.–*Addasarpa*.

Ripe fruit—in syphilis, insanity, epilepsy and as tonic, antiper., anthelm.

W. Peninsula.

ALTERNANTHERA (*Amaranthaceae*)

A. sessilis (Linn.) R. Br.

Bo.–*Kanchari*; *M.*–*Ponnanganni*; Tam. & Mal.–*Ponnanganni-keeray*; Tel.–*Ponnaganta kura*.

Plant—galact., cholag., febge.

Stem and leaves—used in snake-bite.

Young shoots nutritious and contain protein 5% and iron 16·7 mg./100 g. (*Hlth Bull.*, No. 23, 1941, 30).

A weed throughout the warmer parts of India.

ALTHAEA (*Malvaceae*)

A. ludwigii Linn.

Plant—aper.

Agra, Bundelkhand, Punjab, Sind, Baluchistan, Deccan.

A. officinalis Linn.

H., Dec. & Bo.–*Gul-khairo*; Tam.–*Simaitulti*.

Root—demulc., emol.

Infusion of flowers—given in bronchial catarrh and in broncht.

Leaves and flowers—applied to burns.

Fatty oil, butyric acid, phytosterin (*Arch. Pharm., Berl.*, 1919, 288); root contains mucilage 35 and starch 37% (Wehmer, II, 758).

Kashmir, Punjab.

A. rosea Cav.

Seeds—demulc., diur., febge.

Roots—astrin., demulc., in dysen.

Flowers—cooling, diur., used in rheumatism.

Seeds contain 11·9% of a drying oil (Wehmer, II, 758).

Planted in Indian gardens.

ALTINGIA (*Hamamelidaceae*)

A. excelsa Noronha

H.–*Silaras*; Tam.–*Neriyurishippal*; Tel.–*Shilarasamu*; S.–*Silhasara*; Assam–*Jutuli*.

Resin—carmin., expect., stomch., antiscor., applied in scabies and leucoderma.

Benzaldehyde, cinnamic aldehyde (*Arch. Pharm., Berl.*, 1901, 506).

Assam, Bhutan.

ALYSICARPUS (*Leguminosae*)

A. longifolius W. & A.

Marathi–*Jangli gailia, Motha dampta*; Gujarati–*Dhodasamervo*.

Roots—subst. for liquorice (Dymock, Warden & Hooper, I, 447).

Throughout the plains of India.

A. vaginalis DC.

Decoct. of roots—used in Java for coughs.

Throughout India, ascending to 4,000 ft. in the North-western States.

ALYSSUM (*Cruciferae*)

A. maritimum Lam.; see **Lobularia maritima** Desv.

ALYXIA (*Apocynaceae*)

A. stellata Roem. & Sch.

Alk., bitter substance (*Bull. Inst. bot. Buitenz.*, 1904, Nr. 21. 33; *Chem. Zbl.*, 1905, II, 975).

Tenasserim and the Andaman Islands.

AMARANTHUS (*Amaranthaceae*)

A. blitum Linn.

H.–*Sadanatiya*; S.–*Alpamarisha*.

Plant—cooling, emol., astrin.

Plant contains KNO_3 (Wehmer, I, 298).

A common weed throughout India. Much used as a pot-herb in India.

A. blitum Linn. var. **oleracea** Duthie

B.–*Natiyasag*; H.–*Marasa*; S.–*Marisha*; Tam.–*Kiraitand*.

Herb—cooling, stomch., useful in biliousness, haemorrhagic diathesis, emol.

Plant contains KNO_3 and 2·9% protein and is fairly rich in iron (Wealth of India, I, 66).

Cultivated as a pot-herb in India, particularly in the sub-mountainous districts.

A. caudatus Linn. syn. *A. paniculatus* Linn.

Himalayan name–*Kedari-chua*; Gujarati–*Chuko*; B.–*Chuko, Natya*; Bo.–*Kaholabhoji*; H.–*Chaulai, Chuamarsa*; Kash.–*Bustanafroz*; Tam.–*Pungikirai*; S.–*Rajagiri*.

Plant—used for purifying blood and in piles and as diur. in strangury, also given in scrofula and applied to scrofulous sores.

Leaves—oxalic acid (*C.R. Acad. Sci., Paris*, 1886, 1043).

Cultivated throughout India, chiefly in mountainous tracts, and up to 9,000 ft. in the Himalayas.

A. gangeticus Linn.; see **A. tricolor** Linn.

A. gangeticus Linn. var. **tristis** Prain; see **A. tricolor** Linn. var. **tristis** (Prain) nov. comb. Nayar

A. hybridus Linn. var. **hypochondriacus** Rob. syn. *A. hypcohondriacus* Linn.

Plant—astrin.

Cultivated in Indian gardens.

A. hypochondriacus Linn.; see **A. hybridus** Linn. var. **hypochondriacus** Rob.

A. mangostanus Linn.

H.–*Chaulai*.

Throughout India.

A. paniculatus Linn.; see **A. caudatus** Linn.

A. spinosus Linn.

S.–*Tanduliya*; H.–*Katailichaulai*; B.–*Kanta notya*; Tam.–*Mulluk-kirai*; Tel.–*Mullatota-kura*; Marathi–*Kante math*.

Root—in menor., gonor., eczema, colic, lactag.

Leaves and roots—boiled given to children as laxt., and applied as emol. poultice to abscesses, boils and burns.

Plant—in snake-bite.

A field weed throughout India.

A. tricolor Linn. syn. *A. gangeticus* Linn.

H.–*Lalsag*; B.–*Dengua*; Bo.–*Matichulai*; M.–*Kirai*; S.–*Marisha*; Tel.–*Tota kura*.

Plant—astrin., in menor., diar., dysen. and haemor. from the bowels, externally as emol. poultice, as an application in ulcerated conditions of throat and mouth, and as a wash for ulcers.

Fatty oils (*J. Indian chem. Soc.*, 1945, 117).

Cultivated throughout India.

A. tricolor Linn. var. **tristis** (Prain) nov. comb. Nayar

B.–*Champanatiya*; H.–*Chumlisag*; S.–*Mekanada*; Tam.–*Shirukirai*; Tel.–*Sirrukura*.

Root—demulc.

Herb—diur.

Cultivated in India as a pot-plant.

A. tristis Willd.; see **A. tricolor** Linn. var. **tristis** (Prain) nov. comb. Nayar

A. viridis Linn.

S.–*Tanduliya*; Gujarati–*Dhimdo*; Marathi–*Lhanamat*.

Leaves—emol., in scorpion-sting.

Herb—in snake-bite.

Throughout India, in waste places.

AMBERBOA (*Compositae*)

A. divaricata Kuntze syn. *Volutarella divaricata* Benth. et Hook. f.

Bo. & H.–*Badaward*; Marathi–*Sakayi*.

Plant—tonic, aper., deobstruent, febge., slightly mucilaginous and used in coughs.

Alk. (Dymock, Warden & Hooper, II, 307).

Central, W. and S. India, Punjab Plain.

AMMANNIA (*Lythraceae*)

A. auriculata Willd.

P.–*Dadmari, Fauglimehndi*.

Plant—used as blistering agent.

Rajputana, Kurram Valley, Chitral, Tibet, Kashmir, Upper Gangetic Plain, Punjab, Bengal.

A. baccifera Linn.

S.–*Agnigarva*; H.–*Dadmari, Janglimehndi*; Tam.–*Nirumel-neruppu*; Tel.–*Agnivednapaku*; B.–*Dadmari*; P.–*Dederbuti*.

Leaves—acrid, used to raise blisters, in rheum. pains, fevers and as rubft. in skin diseases.

Very common all over India in rice fields and marshy localities.

A. senegalensis DC.; see **A. auriculata** Willd.

AMOMUM (*Zingiberaceae*)

A. aromaticum Roxb.

H. & B.–*Morang-elaichi*; Marathi–*Veldode*.

Seeds and oil—uses similar to those of *A. subulatum*.

Essen. oil (*Ber. Schimmel u. Co., Lpz.*, 1897, April, 48).

E. Himalayas, Khasia Hills, Sylhet, N. Bengal, Nepal.

A. costatum Benth.

In Chinese medicine seeds employed for ailments of stomach, for asthma, pulmonary affections and general debility.

E. tropical Himalayas, Sylhet.

A. melegueta Rosc.; see **Aframomum melegueta** (Rosc.) K. Schum.

A. subulatum Roxb.

S.–*Brihadaela*; H. & B.–*Bara-elachi*; Tam.–*Periyayelam*; Tel.–*Peddayelaki*.

Seeds—stomch., useful in neuralgia, used in gonor. as aphrodis., antid. to scorpion-sting and snake-bite.

Oil from seeds—arom., stim., stomch., applied to eyelids to allay inflam.

Essen. oil.

Cultivated in swampy places along the sides of mountain streams in Nepal, Bengal, Sikkim and Assam.

A. xanthioides Wall.

H.–*Ilayechi*; B.–*Elach*; Tam.–*Elam*; Tel.–*Elakulu*; Marathi–*Elachi*.

Seeds—stim., carmin., useful in relieving tormina and tenesmus and in dysen.

Fruit—essen. oil 1·7-3·0% (*J. pharm. Soc. Japan*, 1930, 86; *Chem. Zbl.*, 1930, II, 2069; *Chem. Abstr.*, 1930, 4806).

Tavoy, Tenasserim.

AMOORA (*Meliaceae*)

A. cucullata Roxb.

B.–*Amur, Latmi.*

Bruised leaves—applied to remove inflam.

Coast forests of Bengal.

A. rohituka W. & A.; see **Aphanamixis polystachya** (Wall.) Parker

AMORPHOPHALLUS (*Araceae*)

A. campanulatus (Roxb.) Bl.

S.–*Arsaghna*; Bo.–*Jungli suran*; B.–*Ol*; H.–*Zaminkand*; Tam.–*Karnaikilangu*; Tel.–*Kanda*; Mal.–*Chena*.

Tuber—stomch., tonic, restor., carmin., in piles and dysen., when fresh acts as an acrid stim. and expect. and much used in acute rheumatism.

Enzyme (*J. Indian chem. Soc.*, 1944, 223).

Cultivated largely throughout the plains of India.

A. prainii Hook. f.

Malay–*Likir*.

Acrid juice—used as a poison by the Malays.

Malay Peninsula.

A. sylvaticus (Roxb.) Kunth

S.–*Vajra-kanda*.

Seeds—cure for toothache and gland enlargement.

Madras State in the Circars, Nilgiris and Coorg.

AMPELOCISSUS (*Vitaceae*)

A. araneosa Planch. syn. *Vitis araneosa* Laws.

H.–*Kauraj*; Bo.–*Bendervel, Chamar-musli*.

Root—cooling, astrin.

Deccan, higher ghats W. of Junar, W. Ghats in the Nilgiris, Pulneys and Anamalais, Shevaroy Hills of Salem, up to 4,500 ft.

A. arnottiana Planch. syn. *Vitis indica* W. & A.

H.–*Jangli-angur*; B.–*Amoluka*; Marathi–*Randraksha*; Mal.–*Semparavalli*; Tam. & Tel.–*Sambaravalli*.

Juice of root—with kernel of coconut, employed as a depurative and aper.; used as alter. in form of a decoct., considered a purifier of blood and diur. rendering the secretions healthy.

Konkan, N. Kanara, W. coast and W. Ghats from S. Kanara to Tinnevelly up to 13,000 ft. in Wynaad.

A. latifolia Planch. syn. *Vitis latifolia* Roxb.

B.–*Govila*; H.–*Panibel*; Mal.–*Karantavalli*; Marathi–*Golinda*; Tam.–*Kattukkodimundirigai*; Tel.–*Bedasativva*.

Roots—applied to wounds.

Sub-Himalayan tract from the Sutlej eastwards to Kumaon up to 4,000 ft., Assam, Sylhet, Konkan, W. Ghats from Bombay to the Nilgiris and Anamalais, Deccan, Carnatic, N. Circars.

A. tomentosa Planch. syn. *Vitis tomentosa* Heyne

Santh.–*Ghoralidi*; Tel.–*Atukulabaddu*; Tam.–*Sirunaralai*.

Root—used to allay swellings.

W. Peninsula of India.

AMPHICOME (*Bignoniaceae*)

A. emodi Royle ex Lindl.

Kash.–*Kaur*.

Plant—febge., subst. for chiretta.

Bitter alk. (*Rep. Indian Mus.*, 1907-8, 21; *Pharm. J.*, vol. 79, 506); roots and leaves — amorphous alks.; leaves — a neutral crystalline substance (*For. Res. India*, 1940-41, Pt. I, 108).*

Temperate Himalayas, 2,000-9,000 ft., from Kashmir to Nepal.

AMPHILOPHIS (*Gramineae*)

A. odorata A. Camus syn. *Andropogon odoratus* Dna. Lisoba

Bo.–*Ushadhana*.

Plant—carmin.

Essen. oil (*Ber. Schimmel u. Co., Lpz.*, 1892, April, 44; 1912, April, 23; 1913, Oct., 19; *Pharm. Weekbl.*, 1924, 1182).

Abundant in the neighbourhood of Bombay and in the Deccan.

AMYGDALUS (*Rosaceae*)

A. communis Linn.; see **Prunus amygdalus** Batsch

A. persica Linn.; see **Prunus persica** Batsch

AMYRIS (*Burseraceae*)

A. commiphora Roxb.; see **Commiphora agallocha** Engl.

ANABASIS (*Chenopodiaceae*)

A. multiflora Moq.; see **Haloxylon multiflorum** Bunge

ANACARDIUM (*Anacardiaceae*)

A. occidentale Linn.

H. & Bo.-*Kaju*; B.-*Hajli badam*; Mal.-*Kashumavu*; S.-*Kajutaka*; Tam.-*Mundiri*; Tel.-*Mokkamamidi*.

Bark—alter., astrin.

Tar from the bark—applied in leprosy, corns, ulcers, counter-irrit., rubft., vesic.

Root—purg.

Kernel—nutri., demulc., emol.

Fruit—antidiarrhoeal.

Cardol, anacardic acid (*Ber. dtsch. chem. Ges.*, 1887, 1861; *J. Indian Inst. Sci.*, 1923, 133; 1923, 111; *Koninkl. Ned. Akad. Wetenschap., Proc.*, 1931, 165; *Chem. Zbl.*, 1931, I, 2605); anacardein (*Biochem. J.*, 1936, 604); fruit—latex with vesicant properties; contains anacardic acid, a phenol cardol (*Rec. Trav. chim. Pays-Bas*, 1941, 661; *Chem. Abstr.*, 1943, 1394); tincture or extract of the bark if given orally lowers blood pressure (*Brazil-med.*, 1951, 305; *Chem. Abstr.*, 1951, 10396).*

Naturalized and cultivated in the coastal districts of India, especially in the West Coast, Ratnagiri and N. Kanara districts in Bombay, Goa, S. Kanara and Malabar districts in Madras, Cochin and Travancore.

ANACYCLUS (*Compositae*)

A. pyrethrum DC.

S.-*Akara-karava*; H., B. & Bo.-*Akarakara*; M.-*Akkirakaram*.

Cordial, stim., sialog., in rheumatism.

Essen. oil., pellitorine or pyrethrin (*Chem. News*, 1895, 94, 100; *Ber. dtsch. chem. Ges.*, 1927, 2284; 1928, 246; *J. chem. Soc.*, 1930, 6).*

Indigenous to North Africa, whence it has been introduced into South Europe.

ANAGALLIS (*Primulaceae*)

A. arvensis Linn.

H.-*Jonkmari*; Gujarati-*Anagallide, Morgellina*; P.-*Dhabbar*.

Herb—in gout, cerebral affections, hydrophobia, leprosy, dropsy, epilepsy, mania, as fish poison, in snake-bite.

Saponin, enzyme (*J. Pharm. Chim., Paris*, 1846, 339; *Ann. chim.*, 1892, 20); plant contains 2 glucosidic saponins, root on keeping develops the smell of valerian and contains cyclamin (Wehmer, II, 923); toxic to sheep, toxicity varies greatly (*Aus. vet. J.*, 1939, 19; *Chem. Abstr.*, 1939, 6964).

More or less throughout India as a weed ascending to 8,000 ft. in the Himalayas.

ANAMIRTA (*Menispermaceae*)

A. cocculus (Linn.) W. & A. syn. *A. paniculata* Colebr.

Bo.-*Kakaphala*; H., S. & Gujarati-*Kakmari*; B.-*Kakamari*; Mal.-*Garaphala*; Tel.-*Kakamari, Koditige*.

Plant—fish poison.

Seeds—in night sweats of phthisis.

Ointment prepared from drupes—used as insecticide, to destroy pediculi and chr. skin diseases.

Picrotoxin, cocculin, anamirtin (*Ber. dtsch. chem. Ges.*, 1881, 817; 1898, 2958; *Chem. Abstr.*, 1942, 2348; Wehmer, I, 333; *J. Amer. chem. Soc.*, 1935, 111); pericarp—alks. menispermine and paramenispermine, both pharmacologically inactive, toxicity due to picrotoxin (Henry, 1939, 366).*

Khasia Hills, Orissa, E. Bengal, Deccan (Cuddapah, Malabar and Mysore).

ANANAS (*Bromeliaceae*)

A. comosus Merr. syn. *A. sativus* Schult. f.

H.-*Anannas*; B.-*Anaras*; S.-*Anannasa*; Marathi-*Ananas*; Mal.-*Annanas*; Tam.-*Anassappalam*; Tel.-*Anasapandu*.

Juice of leaves—anthelm.

Unripe fruit—abortif.

Juice of fruit—antiscor.

Bromelin, As 0·008 mg. in 100 g. (*C.R. Acad. Sci., Paris*, 1914, 893; *Chem. Zbl.*, 1914, I, 1730; *Pharm. Zentralh.*, 1892, 32); alk. (*Apothekerztg. Berl.*, 1895; *J. Amer. chem. Soc.*, 1925, 1177); fresh juice contains bromelin, an enzyme which aids digestion (*Chem. Abstr.*, 1940, 2069).*

Cultivated in Assam, Bengal and along the W. Coast. Indigenous to Brazil.

A. sativus Schult. f.; see **A. comosus** Merr.

ANAPHALIS (*Compositae*)

A. neelgerryana DC.

Nilgiris-*Kat-plaster*; S.-*Varna pata.*

Leaves—bruised and applied to wounds and cuts as a plaster.

W. Ghats and Nilgiri Hills, 7,000-8,250 ft.

ANASTATICA (*Cruciferae*)

A. hierochuntica Linn.

H. & Bo.-*Garvaphul.*

Used in difficult labour.

A dwarf desert plant, found in Arabia, Palestine, Syria, etc.

ANDIRA (*Leguminosae*)

A. araroba Aguiar

Used in ringworm.

Chrysophanic acid (*J. chem. Soc.*, 1902, 1575; 1912, 290; *Apothekerztg, Berl.*, 1915, 517; *Arch. Pharm., Berl.*, 1925, 321, 436).*

Brazil.

ANDRACHNE (*Euphorbiaceae*)

A. cordifolia Muell.-Arg.

P.-*Gurguli*; Garhwal-*Bhatula.*

Plant—poisonous to cattle.

Leaves—HCN.

Central and temperate Himalayas, alt. 4,000-8,000 ft., westwards to Murree.

ANDROGRAPHIS (*Acanthaceae*)

A. echioides Nees

Mal. - *Pitumba*; Dec. - *Ranjimani*; Gujarati-*Kalukariatun*; Marathi-*Ranchimani.*

Juice of plant—given in fever.

No crystalline andrographolide (*Indian J. Pharm.*, 1951, 63; *Chem. Abstr.*, 1951, 10505).

Tropical India in the drier districts.

A. paniculata Nees

S.-*Bhunimba, Kirata*; H.-*Kiryat, Kirayat*; B.-*Kalmegh*; Tam. & Tel.-*Nila vemu*; Mal.-*Nelavepu*; Marathi-*Olikiryata.*

Plant—febge., tonic, alter., anthelm., useful in debility, dysen. and dyspep.

Infusion of plant—in fever.

Roots and leaves—febge., stomch., tonic, alter., anthelm.

Kalmeghin (*Amer. J. Pharm.*, 1914, 349); bitter principle andrographolide 0·8-2·5% (*J. Indian chem. Soc.*, 1939, 333; *Indian J. Pharm.*, 1948, 70; *Chem. Abstr.*, 1949, 3565).*

Throughout the plains of India, sometimes cultivated.

ANDROPOGON (*Gramineae*)

A. citratus DC.; see **Cymbopogon citratus** (DC.) Stapf

A. contortus Linn.; see **Heteropogon contortus** Roem. & Schult.

A. halepensis Brot.; see **Sorghum halepense** (Linn.) Pers.

A. jwarancusa Jones; see **Cymbopogon jwarancusa** Schult.

A. muricatus Retz.; see **Vetiveria zizanioides** (Linn.) Nash

A. nardus Linn.; see **Cymbopogon nardus** (Linn.) Rendle

A. odoratus Dna. Lisboa; see **Amphilophis odorata** A. Camus

A. schoenanthus Linn.; see **Cymbopogon schoenanthus** (Linn.) Spreng.

A. sorghum Brot.; see **Sorghum vulgare** (Linn.) Pers.

A. squrrosus Hook. f. (non Linn. f. Fl. Br. Ind., VII, 186); see **Vetiveria zizanioides** (Linn.) Nash

ANEILEMA (*Commelinaceae*)

A. conspicuum Kunth

Plant—used medicinally by the Malays and said to be emmen.

Patkai Hills of Assam.

A. lineolatum Kunth

Plant—used by the Malays as abortif.

Throughout tropical India, in the W. Ghats from Konkan to Travancore, and Sikkim, Bhutan and the Khasia Hills up to 4,000 ft.

A. nudiflorum Br.

Herbage—cooked in oil employed in the treatment of leprosy.

Throughout India; from the N.W. Himalayas ascending to 6,000 ft. eastwards and southwards to the Khasia Hills, the Deccan and Travancore.

A. scapiflorum Wight

H.-*Siyah musli*; B.-*Kureli*; Bo. & Gujarati-*Sismulia.*

Roots—astrin., tonic, in snake-bite.

Root bark—used in colic, piles, infantile convulsions, asthma and incontinence of urine; dried, powdered and mixed with sugar as aphrodis., and with juice of *tulsi* leaves in spermatorrhoea.

Temperate and tropical Himalayas, Upper Gangetic Plain, W. Peninsula, Travancore.

A. tuberosum Ham.; see **A. scapiflorum** Wight

ANEMONE (*Ranunculaceae*)

A. obtusiloba D. Don

P. & Kumaon-*Rattanjog, Ratanjota.*

Roots—mixed with milk and given internally for contusions, and used externally as a blistering agent.

Seeds—produce vomiting and purging.

Air-dried plant contains small quantities of a substance with properties similar to anemonin.*

Temperate and alpine Himalayas, from Kashmir to Sikkim, 7,500-15,000 ft.

A. narcissiflora Linn.

Plant—said to be poisonous (*J. Bombay nat. Hist. Soc.*, 1937, 720).

Temperate and alpine regions throughout Kashmir.

ANETHUM (*Umbelliferae*)

A. sowa Kurz syn. *Peucedanum graveolens* Linn. (in part)

S.–*Satapushpi*; H. & B.–*Sowa*; Bo.–*Surva*; Tam.–*Sata kuppi*.

Fruits—carmin., stomch.

Essen. oil from the seeds—carmin., useful in flatulence of children.

Seeds yield 3-3·5% essen. oil (*J. Indian Inst. Sci.*, 1925, 183); root—essen. oil containing 95% α-β-pinene (*J. Amer. chem. Soc.*, 1933, 3400; *Ber. Schimmel u. Co., Lpz.*, 1934, 17; *Chem. Zbl.*, 1933, II, 2543); herb yields 0·062% essen. oil with high proportion of terpenes (α-phellandrene), but no carvone (*Proc. Indian Acad. Sci.*, 1940, 251; *Chem. Abstr.*, 1941, 1182).

Throughout India, often cultivated.

ANGELICA (*Umbelliferae*)

A. archangelica Linn. syn. *Archangelica officinalis* Hoffm.

Root, rootstock and fruits—stim., expect., diaphor.

Dry rootstock—0·35% essen. oil (Wehmer, II, 887); fruits 1·2-1·3% essen. oil (*Chem. Abstr.*, 1931, 1951); main constituent of essen. oil is β-phellandrene (*Chem. Abstr.*, 1939, 5830); air-dried root yields 0·136% essen. oil containing d-α-phellandrene, α-pinene, hydroxy pentadecanoic acid and α-methyl butyric acid (*Pharm. Weekbl.*, 1946, 387; *Chem. Abstr.*, 1947, 2210); roots and fruits contain several furocoumarins as angelicin, bergapten, xanthotoxin, etc., in addition to umbelliprenin and some phenols (*Chem. Abstr.*, 1934, 4720; 1939, 2505).

Kashmir, 8,000-13,000 ft.

A. glauca Edgw.

P.–*Chora, Chura*.

Herb—cordial, stim., in dyspep. and constip.

Dry roots—1·3% essen. oil (*Indian J. agric. Sci.*, 1947, 1010).

W. Himalayas, from Kashmir to Simla, 8,000-10,000 ft.

ANISOCHILUS (*Labiatae*)

A. carnosus Wall.

H.–*Panjiri-ka-pat*; Bo.–*Kapurli*; Dec.–*Panjirikapatta*; Mal.–*Patukurkka*; Tel.–*Karpuravalli*; Tam.–*Karppuravalli*.

Plant—stim., expect., useful in cough of children.

Juice of fresh leaves—cooling, mixed with sugar-candy given for coughs and colds.

Essen. oil.

W. Himalayas, Bengal, Madhya Bharat, N. Circars, Deccan, Carnatic.

ANISOMELES (*Labiatae*)

A. indica (Linn.) Ktze.

Bo.–*Gopali*.

Plant—carmin., astrin., tonic.

Oil from plant—in uterine affections.

Throughout India, ascending to 6,000 ft. in the Himalayas.

A. malabarica R. Br.

S.–*Vaikuntha*; Bo.–*Chodhara*; Tam.–*Peyameratti*; Tel.–*Moga-biraku*; Mal.–*Karithumba*.

Infusion of leaves—in colic and dyspep., catar. affections, and intermittent fevers, given to children in colic, dyspep. and fever arising from teething.

Plant—in scorpion-sting and snake-bite.

Decoct. of plant or essen. oil distilled from leaves—used externally in rheumatism.

Plant contains small amount of alk. and some essen. oil (*Indian J. Pharm.*, 1945, 123; *Chem. Abstr.*, 1946, 4481).

Deccan, N. Kanara, S. Carnatic.

A. ovata R. Br.; see **A. indica** (Linn.) Ktze.

ANNONA (*Annonaceae*)

A. muricata Linn.

Mal.–*Mullanjakka*, *Vilattinuna*; Tam.–*Mullu-chitta, Pulippala*.

Fruit—antiscor.

Seeds—emetic, astrin., used as fish poison, insecticidal.

Leaves contain traces of essen. oil and alk. substance [*Pharm. J.*, 1911, (IV), 33, 743]; bark yields 0·05% alks.; two crystalline alks. muricine and muricinine isolated; both belong to aporphine group (*Ingen. Ned.-Ind.*, 1941, 64; *Chem. Abstr.*, 1941, 8206).

Grown to a small extent in Assam and is occasionally found in S. India.

A. reticulata Linn.

H.–*Louna, Ramphal*; B.–*Nona*; Bo.–*Ramphal*; S.–*Ramphala*; Tam.–*Ramachita*; Tel.–*Ramsitaphalamu*.

Bark—astrin.

Fruit—anthelm., antidysen.

Leaves and seeds—insecticidal.

Bark—0·03% of alk. anonaine (*Philipp. J. Sci.*, 1930, 561; 1932, 357); bark—0·12% anonaine (*Helv. chim. acta*, 1939, 1036; *Chem. Abstr.*, 1940, 1022).

Cultivated in India, naturalized in Bengal and S. India.

A. squamosa Linn.

S.–*Gandagatra*, *Sitaphala*; H.–*Sharifa*, *Sitaphal*; B.–*Ata*; Tam.–*Sitapalam*; Tel.–*Sitaphalamu*.

Root—purg.

Seeds, fruits and leaves—insecticide, fish poison, used to remove lice in head.

Seeds—irrit. to conjunctiva and os-uterus, abortif.

Amorphous alk., tox. resin and oil [*J. Indian Inst. Sci.*, 1924, 232; 1927, 28; *Rep. Mysore agric. Dep.*, 1932-33, 58-61 (1934)]; hydrocyanic acid in leaves, bark and root (*Philipp. Agric.*, 1928, 333); anonaine isolated from bark (*Philipp. J. Sci.*, 1931, 409); fruit—vitamin C (*Philipp. J. Sci.*, 1934, 379; *Chem. Zbl.*, 1934, II, 2706).*

Occurs wild and is also cultivated throughout India.

ANODENDRON (*Apocynaceae*)

A. paniculatum A. DC.

Bo.–*Lamtani*; Marathi–*Kavali*.

Root—said to possess properties like Ipecacuanha.

Leaves bitter substance (*Meded. PlTuin, Batavia*, 1898, 126).

Sylhet, Orissa, N. Circars, Mysore, Konkan, W. Ghats from Bombay and Coorg to Travancore.

ANOECTOCHILUS (*Orchidaceae*)

A. setaceus (Blume) Lindl.

Sing.–*Wanna-rajah*.

Considered medicinal in Ceylon.

Damp forests of Ceylon.

ANOGEISSUS (*Combretaceae*)

A. latifolia Wall.

H.–*Bakla*, *Dhaura*; B.–*Dhaoya*; Bo.–*Dhavada*; S.–*Dhava*; Tam.–*Vellaynaga*; Tel.–*Chirimanu*; Mal.–*Marukinchiram*.

Bark—bitter, astrin.

Plant—in scorpion-sting and snake-bite.

Tannin (*Bull. imp. Inst., Lond.*, 1929, 452; 1931, 137); yields gum which is a good subst. for gum arabic (Martindale, I, 2); gum is chiefly built up of pentoses and galactose (Wehmer, I, 824).

Common in dry deciduous forests throughout India except E. Bengal and Assam. Found in the sub-Himalayan tract from the Ravi to Nepal, Bihar, Chota Nagpur, Madhya Bharat and southwards to Ceylon. Ascends to 4,000 ft. in the Himalayas and the South Indian hills.

ANTHEMIS (*Compositae*)

A. cotula Linn.

Flowers and leaves—tonic, antisp., emmen., emetic, in sick headache.

Plant—acrid, blisters the skin.

Essen. oil (*Amer. J. Pharm.*, 1891, 383).

Baluchistan, probably also in Sind.

A. gayana Boiss.

Baluchistan–*Piunphuli*.

Leaves—eaten to cure pains in chest.

Baluchistan.

A. nobilis Linn.

H.–*Babuni-ke-phul*; M.–*Shimaicha-mantipu*.

Properties same as of *Matricaria chamomilla*.

Flowers—stim., tonic, carmin.

Essen. oil anthemene, anthemic acid (*Ber. Schimmel u. Co., Lpz.*, 1903, 37; 1915, April, 41; 1922, 55; *J. chem. Soc.*, 1914, 1829; *Perfum. essent. Oil Rec.*, 1921, 283); essen. oil 0·25%, sulphur 0·19-0·3% (*J. Pharm. Belg.*, 1933, 595; *Chem. Zbl.*, 1933, II, 2703); 1% essen. oil (*Amer. Perfum.*, 1936, 71; 1937, 56; *Chem. Abstr.*, 1937, 1951).*

Indigenous in England, also plentiful in France, Spain, Germany and Russia. Cultivated in the gardens of the rich in India.

A. odontostephana Boiss.

Decoct. of flowers—febge., carmin.

Peshawar, Baluchistan.

ANTHOCEPHALUS (*Rubiaceae*)

A. cadamba Miq.; see **A. indicus** A. Rich.

A. indicus A. Rich. syn. *A. cadamba* Miq.; *Nauclea cadamba* Roxb.

S., Bo. & H.–*Kadamba*; B.–*Kadam*; Tam.–*Vellai-cadamba*; Tel.–*Kadambamu*.

Bark—tonic, febge., astrin., in snake-bite.

Decoct. of leaves—used as gargle in cases of aphthae and stomatitis.

Principle similar to cinchotannic acid.

Sub-Himalayan tract from Nepal eastwards to Burma, and in the south in N. Circars and W. Ghats.

ANTHOXANTHUM (*Gramineae*)

A. odoratum Linn.

The grass is specially provocative of hay fever and hay asthma, a medicinal tincture from it is sniffed well into the

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nose and throat for immediate relief in attack.

A native of Central and N. Asia, occasionally found in hill districts of India, either introduced or as an escape from cultivation.

ANTHRISCUS (*Umbelliferae*)

A. cerefolium Hoffm.

Ind. Baz.-*Atrila.*

Diur., stomch., deobst.

Essen. oil, glucd. apiin [*Bull. Soc. chim. Fr.*, 1899, 368; *Ann. Chim.* (*Phys.*), 1843, 250].

An annual herb, native of Europe, suited to the higher elevations in the tropics.

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ANTIARIS (*Maraceae*)

A. innoxia Bl.; see **A. toxicaria** (Pers.) Lesch.

A. saccidora Dalz.; see **A. toxicaria** (Pers.) Lesch.

A. toxicaria (Pers.) Lesch.

Bo.-*Chandla*; Marathi-*Karvat*; S.-*Valkala*; Tam. & Mal.-*Nettavil*; Sing.-*Riti*; Burm.-*Hmyaseik.*

Sap—arrow poison.

Seeds—febge., in dysen.

Glucds. α-antiarin, β-antiarin, γ-antiarin, antiaresin, toxicarin (*Arch. Pharm., Berl.*, 1896, 438; 1908, 504; *Ber. dtsch. chem. Ges.*, 1910, 3574; 1913, 2199); glucd. possesses strong digitalis-like action on the heart; an amorphous body, γ-antiarin with similar toxic effect has been isolated (*Chem. Abstr.*, 1911, 1283; 1913, 1717); 7·5 mg. of water-soluble extract per kg. proved fatal to a cat in half an hour (*Indian J. med. Res.*, 1934, 513); sap contains α-antiarin (*Helv. chim. acta*, 1948, 688; *Chem. Abstr.*, 1948, 6369); α-antiarin is slightly less active than the β- compound (*Chem. Abstr.*, 1937, 3995; 1942, 2921).*

Evergreen forests of the W. Ghats from Konkan southwards to Travancore, up to 2,000 ft. above sea level.

ANTICHARIS (*Scrophulariaceae*)

A. glandulosa Aschers.

Used in diabetes.

Sind.

ANTIDESMA (*Euphorbiaceae*)

A. alexiteria Linn.; see **A. zeylanicum** Lam.

A. bunius Spreng.

Tam.-*Nolaiali*; Tel.-*Anepu*; Mal.-*Nulittali*; Nep.-*Himalcheri*; Marathi-*Amati*.

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Leaves—antid. to snake poison and when young, boiled and used in syphilitic cachexia.

Bark—poisonous, said to contain an alk. (Burkill, I, 185).

Throughout the hotter parts of India, particularly on the lower Himalayas and Konkan.

A. ghesaembilla Gaertn.

H. & P.-*Umtao*; B.-*Khudijamb*; M.P.-*Jhondri*; Tel.-*Lona, Janupulisaru.*

In Cambodia bark considered astrin. and tonic; wood—emmen.

Tropical Himalayas, from Simla to Bhutan, in Konkan, N. Kanara.

A. zeylanicum Lam.

Tam.-*Nolaidali.*

Leaves—in snake-bite.

S. Deccan Peninsula, Ceylon.

ANTIRRHINUM (*Scrophulariaceae*)

A. glaucum Stocks ex Wight; see **Schweinfurthia sphaerocarpa** A. Br.

APHANAMIXIS (*Meliaceae*)

A. polystachya (Wall.) Parker

B.-*Tiktaraj, Pitaraj*; H.-*Harinhara*; Mal.-*Chemmarom*; Marathi-*Rohada*; S.-*Rohitaka*; Tam.-*Sem, Malampuluvan*; Tel.-*Chawamanu.*

Bark—astrin., used in spleen and liver diseases, tumours, abdominal complaints.

Seed oil—used as liniment in rheumatism.

Fixed oil (*J. Indian Inst. Sci.*, 1935, 19; *Chem. Abstr.*, 1940, 3523).

Sub-Himalayan tract from Gonda (U.P.) eastwards to Bengal and Assam, Sikkim, up to 6,000 ft., Chota Nagpur, Konkan, W. Ghats and adjoining hill ranges from the Poona district southwards to Tinnevelly up to 3,500 ft.

A. rohituka Wight & Arn.; see **A. polystachya** (Wall.) Parker

APIUM (*Umbelliferae*)

A. graveolens Linn.

S.-*Ajamoda*; H.-*Ajmud*; B.-*Chanu, Randhuni*; S. India-*Ajmod.*

Root—alter., diur., given in anasarca and colic.

Seeds—stim., cordial, tonic, carmin., diur., emmen., as antisp. used in broncht., asthma and for liver and spleen diseases.

Essen. oil, glucd., apiin [*Ber. Schimmel u. Co., Lpz.*, 1909, Oct., 105; 1910, April, 95; *Ann. Chim.* (*Phys.*), 1843, 250]; contracts gravid and virginal uterus (*Merck's Jber.*, 1936, 102; *Chem. Abstr.*, 1934, 3149); fruits yield 2-3% of a pale yellow volatile oil which consists of *d*-limonene 60, *d*-selinene 10, sedanonic acid anhydride 0·5, and sedanolide 2·5–3% (Finnemore, 644; Wehmer, II, 876).

Foot of the N.W. Himalayas and outlying hills in the Punjab and Uttar Pradesh.

A. petroselinum Linn.; see **Petroselinum crispum** (Mill.) Nym. ex auct Kew

APLOTAXIS (*Compositae*)

A. auriculata DC.; see **Saussurea hypoleuca** Spreng.

APOROSA (*Euphorbiaceae*)

A. lindleyana Baill.

S.–*Valaka*; Mal. & Tam.–*Vittil*.

Decoct. of the root—given in jaundice, fever, headache, seminal loss and insanity.

Forests of Konkan and N. Kanara, extending southwards to Ceylon up to an altitude of 2,000 ft.

AQUILARIA (*Thymelaeaceae*)

A. agallocha Roxb.

S. & B.–*Agaru*; Bo.–*Hindiagara*; H. & Tam.–*Agar*; Tel.–*Agru*.

Wood—stim., carmin., tonic, aphrodis., astrin. in diar. and vomiting, in snake-bite.

Essen. oil (*Perfum. essent. Oil Rec.*, 1927, 139; *Ber. Schimmel u. Co.*, *Lpz.*, 1928, 3).

E. Himalayas, Bhutan, parts of Bengal and particularly in Assam on the hill forests of Khasia, Garo, Naga, Cachar and Sylhet.

AQUILEGIA (*Ranunculaceae*)

A. vulgaris Linn.

Poisonous.

HCN-glucd. (*Pharm. Post.*, 1891, 659; *Bull. Soc. chim. Fr.*, 1898, 310; *Arch. Pharm.*, *Berl.*, 1910, 463).

Temperate and subalpine Himalayas.

ARABIDOPSIS (*Cruciferae*)

A. thaliana (Linn.) Heynh.

English–*Thale Cress*.

Used in Spain to cure sores in the mouth.

Kashmir, 5,000-10,000 ft., Kumaon.

ARACHIS (*Leguminosae*)

A. hypogaea Linn.

S.–*Buchanaka*; H.–*Mungphali*; B.–*Chiner badam*; Bo.–*Bhui-chane*; Mal.–*Nelakadala*; Tel.–*Verusenagalu*; Tam.–*Nila kadalai, Verkadalai*.

Fruit and oil—astrin. to the bowels. Unripe nuts—lactag.

Oil—aper., emol., used as substitute of olive oil.

Nut meal—arachin, con-arachin (*J. agric. Res.*, 1930, 673; *Chem. Zbl.*, 1930, II, 1998); fat, protein, vitamins B_1 and B_2, nicotinic acid, vitamin E (*Chem. Abstr.*, 1942, 4213); vitamin B_6 (pyridoxine) (*Indian J. med. Res.*, 1944, 117); lecithin 0·5-0·7% [*Chem. & Ind.* (Rev.), 1945, 58].

Widely cultivated in India, especially in Madras, Bombay, Madhya Pradesh and Berar, Hyderabad and Mysore.

ARALIA (*Araliaceae*)

A. pseudo-ginseng Benth.

Marathi–*Tapamari*.

Aphrodis., stim. in dyspep. and vomiting, expect., antipyr.

Khasia Hills, 5,000 ft., Nepal, Sikkim and Bhutan, 6,000-12,000 ft.

ARCHANGELICA (*Umbelliferae*)

A. officinalis Hoffm.; see **Angelica archangelica** Linn.

ARCTIUM (*Compositae*)

A. lappa Linn.

Roots—depurative, antiphl., diur., diaphor., alter.

Roots contain 45% inulin; leaves and roots contain volatile oil (Wehmer, II, 1260); seeds—glucd. arctiin (*Chem. Abstr.*, 1939, 582, 1716).

W. Himalayas, from Kashmir to Simla at 6,000-9,000 ft.

ARCTOSTAPHYLOS (*Ericaceae*)

A. uva-ursi Spreng.

Astrin., diur. (N. Sen; Prain)

Leaves—0·8-1·0% of a flavanol glucd. isoquercitin, arbutin and methyl arbutin, total arbutin content varies from 7·5 to 10·7%, isoquercitin in 1:100,000 dilution has a strong diur. action (*J. pharm. Soc. Japan*, 1935, 1332; 1935, 800; *Chem. Abstr.*, 1936, 5987; 1939, 601; *Chem. Zbl.*, 1939, II, 1935-6; *Chem. Abstr.*, 1941, 4549).

A native of N. America, Europe and Asia.

ARDISIA (*Myrsinaceae*)

A. colorata Roxb.

Roots—febge., in diar., rheumatism. Assam and Cachar to Burma, and the Nilgiris.

A. humilis Vahl; see **A. solanacea** Roxb.

A. solanacea Roxb.

B.–*Banjam*; M.P.–*Mayarawa*; Mal.–*Molakka*; Tam.–*Manipudbam*; Tel.–*Kondamayuri*.

Roots—febge., in diar., rheumatism.
Throughout India, from the Himalayas to Ceylon except in western and desert India.

ARECA (*Palmae*)

A. catechu Linn.
S.-*Poogiphalam*; H. & B.-*Supari*; Bo.-*Sopari*; Tam.-*Kamugu*, *Pakku*; Tel.-*Vakka*; Mal.-*Adakka*.
Nut—aphrodis., useful in urinary disorders, astrin., anthelm., nervine tonic, emmen., in veterinary medicine as vermifuge for tapeworm, in snake-bite.
Choline, isoguvocine (*Hoppe-Seyl. Z.*, 1913, 372); alks. arecaine, arecaidine, arecoline, guvacine (*Ber. dtsch. pharm. Ges.*, 1920, 392; *J. prakt. Chem.*, 1927, 147); fruit—α-catechin (*Bull. agric. chem. Soc. Japan*, 1933, 149; *Sci. Pap. Inst. phys. chem. Res. Tokyo*, 1932, 142; *Chem. Zbl.*, 1933, I, 72); seed—arecodine, arecaine (*Bull. Sci. pharm.*, 1933, 98; *Chem. Zbl.*, 1933, I, 72); arecoline-HCl produces convulsions in frog and mouse; m.l.d. 0·005 and 0·001 g. per 10 g. respectively; isolated frog heart depressed; in rabbits blood pressure decreased, heart slowed and respiration accelerated; on isolated rabbit uterus and intestine a vagus effect in large doses increasing tonus and producing tetanus (*Folia pharm. jap.*, 1938, 73, 85; *Chem. Abstr.*, 1939, 2995; *Chin. med. J.*, 1936, 1273; *Chem. Abstr.*, 1937, 209); arecoline exerts nicotine-like action (*Acta pharm. Toxicol.*, 1945, 263; *Chem. Abstr.*, 1946, 6647).
Cultivated in the coastal regions of southern Bombay and Madras, Mysore, Bengal and Assam.

A. concinna DC.
Subst. for betel nut.
Alks. (*Arch. Pharm., Berl.*, 1901, 368; 1905, 247).
Ceylon.

A. nagensis Griff.
Naga-*Talpat*.
Subst. for betel nut.
Naga Hills, up to 800 ft.

A. triandra Roxb.
Subst. for betel nut.
Andaman Islands and Sumatra.

ARENARIA (*Caryophyllaceae*)

A. serpyllifolia Linn.
Herb—used in China for bladder diseases, considered valuable for calculus troubles and acute and chr. cystitis.
Subtropical and temperate Himalayas from Nepal to Kashmir, Rohilkhand and the Punjab at 10,000-11,000 ft., W. Tibet at 11,000-13,000 ft.

ARENGA (*Palmae*)

A. obtusifolia Mart.
Malay-*Langkap*.
Plant—used as fish poison.
Fruits—anticoagulant (Chinese Materia Medica).
A Malayan palm introduced in India as an ornamental palm.

A. pinnata (Wurmb.) Merr.
Tam.-*Kichilippanai*; Burm.-*Toung-ong*.
Root—in broncht., stomch.
Juice of the outer fleshy covering of the fruit—corrosive, fish poison (Burkill, I, 234).
A Malayan palm cultivated in India. Reported wild in Orissa and Assam.

A. saccharifera Labill; see **A. pinnata** (Wurmb.) Merr.

ARGEMONE (*Papaveraceae*)

A. mexicana Linn.
S.-*Srigala-kantaka*; Mal.-*Ponnummattam*; H. & B.-*Shialkanta*; P.-*Siakanta*; Tam.-*Bramadandu*; Tel.-*Brahmadandi*.
Root—alter., in chr. skin diseases.
Seeds—laxt., emetic, expect., demulc.
Yellow juice of plant—for dropsy, jaundice and cutaneous affections.
Oil—purg., used for cutaneous affections.

Seeds—antid. to snake poison.
Alks. berberine, protopine (*J. Amer. chem. Soc.*, 1902, 238; *Pharm. Rev.*, 1901, 458; *Arch. Pharm., Berl.*, 1901, 401; *J. Amer. chem. Soc.*, 1932, 2923; *Bol. Assoc. brasil. farm.*, 1933, 489; *Chem. Zbl.*, 1934, I, 3493); prolonged use of oil produces in man toxic effects resembling those occurring in epidemic dropsy (*Indian med. Gaz.*, 1939, 193); feeding produced no adverse effect; oil can be detected in concentrations of 0·2% or less by HNO_3 test or by $FeCl_3$ test, latter more specific (*Onderstepoort J. vet. Sci.*, 1937, 573; *Curr. Sci.*, 1942, 279; *Ann. Biochem.*, 1942, 101; *Chem. Abstr.*, 1943, 3878; *J. Instn. Chem. India*, 1946, 102).
Naturalized throughout India up to 5,000 ft. in wastelands and along roadsides.

ARGYREIA (*Convolvulaceae*)

A. aggregata (Roxb.) Choisy syn. *Lettsomia aggregata* Roxb.
Tel.-*Ettakuta*.
Leaves—made into a paste applied externally in cough and quinsy.
Deccan, Carnatic, W. Peninsula.

A. cuneata Ker syn. *Rivea cuneata* Wight

Kan.–*Kallana gida.*

Leaves—used in diabetes.

Leaves contain a glycoside; oral administration of a milk extract of the leaves for 3-5 days brings about a significant remission of the characteristic symptoms of diabetes (*Curr. Sci.*, 1952, 69).

Deccan Peninsula.

A. fulgens Chois.

Leaves—antiphl., used in skin diseases.

Deccan Peninsula.

A. malabarica Chois.

M.–*Paymoostey.*

Roots—cath.

Leaves—used to promote maturation of boils.

Malabar and Coromandel coast.

A. speciosa Sweet syn. *Lettsomia nervosa* Roxb.

S.–*Samudrapalaka*; H.–*Samandar-kapat*; B.–*Bichtarak*; Bo.–*Guguli*; Mal. & Tel.–*Samudrapala*; Tam.–*Samutrappachai.*

Root—alter., tonic, useful in rheumatism and diseases of the nervous system.

Leaves—antiphl., used as emol. poultices for wounds and externally in skin diseases (Murray).

Fatty oil (*J. Indian chem. Soc.*, 1947, 83).

Throughout India (except in dry western regions) up to an elevation of 1,000 ft., often cultivated.

ARIKURYROBA (*Palmae*)

A. schizophylla Becc. syn. *Cocos schizophylla* Mart.

English—*Aracuri palm.*

Juice of unripe fruit—used for inflam. of eyes in Brazil.

Cultivated in Indian gardens.

ARISAEMA (*Araceae*)

A. curvatum Kunth; see **A. tortuosum** Schott

A. leschenaultii Bl.

Sing.–*Wal-kidaran.*

Roots—employed medicinally by the Singhalese.

Nilgiris, Travancore, Ceylon.

A. speciosum (Wall.) Mart.

P.–*Kiralu.*, *Samp-ki-khumb.*

Root—antid. to snake poison.

Tuber—given to sheep as remedy for colic and to kill worms which infest cattle.

Temperate Himalayas, from Kumaon to Sikkim and Bhutan at 6,000-10,000 ft.

A. tortuosum (Wall.) Schott

P.–*Don*; Nep.–*Birbanka.*

Plant—poisonous.

Seeds—given with salt for colic in sheep.

Roots—used to kill worms which infest cattle.

Temperate and subtropical Himalayas from Simla to Sikkim and Bhutan at 8,000 ft., Khasia Hills, Manipur, Chota Nagpur, Ranchi, Parasnath, Konkan, Rampa Hills at 4,500 ft., Horsleykonda at 4,000 ft., W. Ghats at 3,000-7,000 ft.

ARISTIDA (*Gramineae*)

A. adscenscionis Linn.

In Madagascar an ointment consisting of lard and the ashes of the flowers is used topically for itch and ringworm.

Throughout the plains and low hills of India, ascending to 8,000 ft. in Kashmir.

ARISTOLOCHIA (*Aristolochiaceae*)

A. bracteata Retz.

S.–*Dhumrapatra*; H.–*Kiramar*; Bo.–*Kidamari*; Tam. & Mal.–*Aduthinapalai*; Tel.–*Adumuttada-gida.*

Plant—purg., anthelm., emmen.

Juice of leaves—applied to foul and neglected ulcers.

Bruised leaf—mixed with castor oil applied to eczema on children's legs.

Decoct. of root—used for expelling roundworms.

Volatile substance and alk. (*Pharm. J.*, 1891-92, 551; Dymock, Warden & Hooper, III, 163; *Arch. exp. Path. Pharmak.*, 1891, 232; Henry, 1924, 376).*

Bengal, Upper Gangetic Plain, Bundelkhand, Sind, Konkan, N. Circars, Deccan, Carnatic.

A. indica Linn.

S.–*Ishvari*; Bo. & Marathi–*Sapasan*; H. & B.–*Isharmul*; Tam.–*Isuramuli*; Tel.–*Eswaramuli*; Mal.–*Isvaramuli.*

Root—tonic, stim., emmen., emetic, in fevers, in powder form given in honey for leucoderma.

Juice of leaves—in snake-bite.

Roots contain a crystalline substance, probably a glucd., a microcrystalline bitter principle glucosidic in nature named isoaristolochic acid, allantoin, 0·05% alk. aristolochin, essen. oil containing carbonyl compounds and a small amount of an oil with the odour of isovanillin (*J. Indian chem. Soc.*, 1935, 476, 494; 1937, 39; *Chem. Abstr.*, 1936, 233; 1937, 5101; 1938, 646); aristolochin causes cardiac and respiratory paralysis in frogs and mice, exerts some pressor action and increases rate of respiration in rabbits, skeletal muscle is stimulated by small and paralysed by large doses; in rabbits it causes haemorrhagia, nephritis, and an arsenic-like gastro-intestinal irritation in dogs (*Folia pharm. jap.*, 1927, 123).

Low hills and plains from Nepal and lower Bengal to Chittagong, in the Deccan Peninsula from Konkan southwards.

A. longa Linn.
Ind. Baz.-*Zarwandi tawil.*
Aromatic bitter; in cobra-bite.
Rhizome—alk. (*Arch. Pharm., Berl.*, 1895, 684).
Indigenous to S. Europe.

A. reticulata Nuttal.
Aromatic bitter (N. Sen; Prain)
Rhizome—essen. oil (*Amer. J. Pharm.*, 1891, 684).
An American species.

A. rotunda Linn.
Ind. Baz.-*Zarwand-i-gird.*
Aromatic bitter.
Alk. aristolochine (*Arch. exp. Path. Pharmak.*, 1891, 282, 642).
Indigenous in S. Europe.

A. roxburghiana Klotz.; see **Aristolochia tagala** Cham.

A. serpentaria Linn.
Aromatic bitter.
Essen. oil, bitter substance (*Gazz. chim. ital.*, 1887, 313; *J. Pharm. Chim., Paris*, 1911, 399).
A native of N. America.

A. tagala Cham.
Tel.-*Nallayiswari.*
Plant—used in bowel complaints.
Bengal, Assam, Sylhet, W. Peninsula.

ARNICA (*Compositae*)

A. montana Linn.
Stim., sedative, resolv. (N. Sen; Prain).

Rhizome and flowers—essen. oil, bitter principle (*Apothekerztg, Berl.*, 1892, 441); flowerheads—0·1% choline, arnidendiol, alloarnidendiol and a petroleum ether soluble fraction arnicin; tincture of arnica when injected causes drop in blood pressure followed by a marked rise (*Arch. Pharm., Berl.*, 1940, 225; *Arch. exp. Path. Pharmak.*, 1943, 242; *Pharm. Ind.*, 1943, 289; *Chem. Zbl.*, 1944, I, 242; *Chem. Abstr.*, 1941, 276; 1944, 159; 1945, 3070); arnica flavones from flowers and roots are injurious to isolated frog heart and toxic to rats and mice (*Z. ges. exp. Med.*, 1943, 690; *Chem. Zbl.*, 1943, 1907; *Chem. Abstr.*, 1944, 4683); flowers gave 0·1% and roots 0·5-1·5% essen. oil which are not identical; flowers also contain a flavone, an adrenaline-like pressor substance, a cardiotonic substance, choline, betaine, etc.; essen. oil is irritating on skin; the flavone causes fall of blood pressure in rabbit (*Med. Mschr.*, 1949, 825; *Chem. Abstr.*, 1950, 2121).

Native of Western and Central Europe.

ARTABOTRYS (*Annonaceae*)

A. odoratissimus R. Br.
B.-*Katchampa*; S.-*Harachampaka*; Dec.-*Madanmast*; Marathi-*Hirva champa*; Tam.-*Manoranjidam*; Tel.-*Manoranjidamu.*

In Malay archipelago the decoct. of the leaves is given for cholera.

Flowers—essen. oil, used in perfumery.

Largely grown in Indian gardens.

A. suaveolens Blume
The Malays use the decoct. of leaves in cholera.

Root and stem bark contain 2 crystalline alks. artabotrine and suaveoline; artabotrine toxic to guinea-pigs (*Philipp. J. Sci.*, 1929, 259; 1930, 561); a third alk. artabotrinine, and an amorphous base isolated (*J. chem. Soc.*, 1939, 991; *Chem. Abstr.*, 1929, 3539; 1933, 2251; 1939, 6857).

Chittagong, Sylhet.

ARTANEMA (*Scrophulariaceae*)

A. sesamoides Benth.
S.-*Kokilaksha*; M.-*Neer-mulli.*
Decoct. of root—given in rheumatism, diar., stone, syphilis, ophthalmia.
Seeds—cure biliousness, improve vitality and favour conception.*
W. Peninsula.

ARTEMISIA (*Compositae*)

A. absinthium Linn.
H. & Dec.-*Vilayati afsantin*; S.-*Damar*; Arab. & Pers.-*Afsanthin.*

Flowers—vermifuge, tonic in intermittent fevers.

Glucd. absinthin, essen. oil (*Arch. Pharm., Bert.*, 1892, 94; *Ber. Schimmel u. Co., Lpz.*, 1930, 92; *Bull. Soc. chim. Fr.*, 1898, 537); absinthin and essen. oil are found in the external hair-like glands only (*C.R. Acad. Sci., Paris*, 1946, 910; *Chem. Abstr.*, 1946, 4116); bitter glucd., absinthin and a crystalline compound (Wehmer, II, 1245).

Kashmir and Kurrum Agency at 5,000-7,000 ft.

A. annua Linn.
In Indo-China herb considered a good stomch., diur. and prescribed in jaundice and skin diseases.

Essen. oil (*Ber. Schimmel u. Co., Lpz.*, 1905, April, 86; 1907, April, 14; *Chem. & Drugg.*, 1917, 376, 746; *J. pharm. Soc. Japan*, 1920, 873); plant yields 0·3% essen. oil composed principally of artemisia ketones, pinene, cineole, *l*-camphor, etc. (Wehmer, II, 1243).

Punjab, Peshawar to Waziristan, ascending to 5,000 ft.

A. biennis Willd.

Essen. oil (Gildemeister Hoffmann, 2, Aufl. III, 698).

Millam (north of Kumaon), alt. 11,500 ft., Sikkim, on the Tibet frontier, alt. 15,000 ft.

A. caruifolia Roxb.

In Annam plant recommended for fevers, chr. diar., phthisis, purulent scabies and intestinal troubles.

E. Bengal, Assam, Nepal.

A. dracunculus Linn.

Aromatic leaves—aper., stomch., stim., febge.

Bitter substance, essen. oil (*Arch. Pharm., Berl.*, 1897, 176); herb contains 0·3% essen. oil composed of methyl chivacol (60-70%) and some *p*-methoxycinnamic aldehyde (Finnemore, 848).

W. Tibet and W. Himalayas at 14,000-16,000 ft. and in Lahul.

A. indica Willd.; see **A. vulgaris** Linn.

A. maritima Linn.

S.–*Gandha, Gadadhar*; Arab. & Pers.–*Shih*; H.–*Kirmala*; Marathi & Bo.–*Kiramani owa.*

Flower heads—anthelm.

Decoct. or infusion of leaves—in ague, intermittent and remittent fevers.

Essen. oil, santonin, bitter substance, artemisin (*J. chem. Soc.*, 1896, 59; *Indian med. Gaz.*, 1924, 537; 1931, 627; Wehmer, II, 1248); santonin content from Kashmir artemisia varies from 1 to 2% (*Bull. imp. Inst., Lond.*, 1923, 316; *Quart. J. Pharm.*, 1933, 23; 1942, 323); santonin content of artemisia from the Kurram Valley varies from 1-1·6% (Badhwar, Report on Kurram *Artemisias* from the Santonin Standpoint, 1934); Indian plant besides santonin contains two more constituents, β-santonin, with very weak anthelm. properties and pseudo-santonin devoid of anthelm. properties (Denston, 134).

W. Himalayas, from Kashmir to Kumaon, 5,000-16,000 ft., and W. Tibet.

A. persica Boiss.

Bo.–*Pardesi dawano*; Arab. & Pers.–*Shih*; Marathi–*Davana.*

Plant—tonic, febge., vermifuge.

W. Tibet, 9,000-10,000 ft.

A. sacrorum Ledeb.

P.–*Burnak, Tatwen.*

Plant—given to horses in head affections.

Plant yields 1% essen. oil which contains cineole 19·26, camphor 6%, etc. (*Chem. Abstr.*, 1936, 3940; *Quart. J. Pharm.*, 1942, 323).

Kunawar, Kumaon on interior ranges bordering Tibet between 10,000 and 12,000 ft.

A. scoparia Waldst. & Kit.

P.–*Dona, Jhan*; Bo.–*Churisaroj, Danti.*

Infusion of plant—purg.

Plant—used as cure for pain in the ear and the smoke is considered good for burns.

Seed and flowering heads—essen. oil 0·75% and 0·92% crystalline lactone scoparin (*Proc. Indian Acad. Sci.*, 1947, 153A; *Chem. Abstr.*, 1947, 6606).

W. Himalayas from Kashmir to Lahul at 5,000-7,000 ft., in Sind, Punjab, Upper Gangetic Plain and W. Tibet at 7,000-12,000 ft.

A. siversiana Ehrh. ex Willd.

B.–*Dona*; Arab.–*Afsantin*; Bo.–*Downa*; Gujarati–*Damro*; H.–*Dauna*; S.–*Damana.*

Plant—tonic, febge., deobstruent, anthelm., emmen., applied externally as a discutient and antisep.

W. Himalayas, from Kashmir to Lahul, at 8,000-10,000 ft. and W. Tibet at 12,000-14,000 ft.

A. vulgaris Linn.

S.–*Nagadamani*; H.–*Nagadouna*; B. & Bo.–*Nagadona*; Tam.–*Mashibattiri, Machipatri*; Tel.–*Machipatri*; P.–*Tarkha.*

Herb—emmen., anthelm., antisp., stomch.

Root—tonic, antisp.

Infusion of leaves and flowering tops—administered in nervous and spasmodic affections, in asthma and diseases of the brain.

Essen. oil (*Ber. Schimmel u. Co., Lpz.*, 1904, April, 97; 1913, April, 24; *Bull. imp. Inst., Lond.*, 1913, 436; *J. pharm. Soc. Japan*, 1924, 510); adenin (*J. pharm. Soc. Japan*, 1933, 47; *Chem. Zbl.*, 1933, I, 3736); plant yields 0·2% volatile oil (Wehmer, II, 1244); oil good larvicide and a feeble insecticide (*J. Malar. Inst. India*, 1940, 495).*

Throughout the mountainous districts of India, ascending up to 5,000-12,000 ft. in the W. Himalayas, and up to 5,000-8,000 ft. in Sikkim and Khasia, Mt. Abu in Marwar and W. Ghats from Konkan southwards to Ceylon.

ARTHRAXON (*Gramineae*)

A. ciliaris Beauv.

Bo.-*Turade.*

Plant—used medicinally in various parts of China.

Hilly districts of India from Kashmir eastwards to Burma, ascending the Himalayas to 5,500 ft., and southwards to the Nilgiri Hills.

ARTHROCNEMUM (*Chenopodiaceae*)

A. indicum Moq.

S.-*Subhar, Suvar*; B.-*Jadu palang*; Bo.-*Machola*; Marathi-*Machura*; Tam.-*Umari*; Tel.-*Koyyapippali.*

Plant—alexipharmic.

Ashes of plant—in scorpion-sting.

A common mangrove in Bengal, N. Circars and Bombay.

ARTHROPHYLLUM (*Araliaceae*)

A. blumeanum Zoll. & Mor.

Alk. (*Bull. Inst. bot. Buitenz.*, 1902, XIV, 24; *Meded. PlTuin, Batavia*, 1902, 73).

South Andamans.

ARTOCARPUS (*Moraceae*)

A. heterophyllus Lam. syn. *A. integrifolia* Linn. f.

S. & Tel.-*Panasa*; H. & B.-*Kathal, Kanthal*; Bo.-*Phanas*; Tam.-*Pilapalam.*

Leaves—used in skin diseases, antid. to snake-bite.

Root—used internally in diar.

Juice of plant—applied to glandular swellings and abscesses to promote suppuration.

Unripe fruit—astrin.

Ripe fruit—laxt.

Wood yields colouring matter morin and cyanomaclurin (Wehmer, I, 245; *J. chem. Soc.*, 1895, 337; *Proc. chem. Soc., Lond.*, 1902, 139; 1904, 170); bark contains 3·3% tannin (Burkill, I, 255); crystalline steroketone, artostenone isolated from the latex (*Sci. & Cult.*, 1935-36, 434; 1937-38, 57); artostenone has been converted to artosterone, a compound with highly androgenic properties (*Indian J. med. Res.*, 1939, 171).*

Indigenous to India, probably the W. Ghats where it grows wild. Grown plentifully throughout the warmer parts of the country, especially in Bengal, Bihar and the Deccan.

A. hirsutus Lam.

Bo. & Marathi-*Ran phanas*; Mal.-*Annili*; Tam.-*Anjali.*

Dry leaves and juice—together with zedoary and camphor used as application to bubos and swelled testicles.

Seeds—16·17% fixed oil (*J. Indian chem. Soc.*, 1945, 275).

W. Ghats from N. Kanara to Malabar, Coorg and Travancore.

A. integrifolia Linn. f.; see **A. heterophyllus** Lam.

A. lakoocha Roxb.

S.-*Lakucha*; H. & B.-*Dahua*; Bo.-*Lahu*; Tel.-*Kammaregu, Lakuchamu*; Tam.-*Ilagusam*; Marathi-*Wotomba.*

Seeds—purg.

Bark—in powder form applied to sores to draw out purulent matter, in infusion applied to small pimples and cracked skin.

Sub-Himalayan tract up to 4,000 ft. from Kumaon eastwards to Assam, and southwards to Burma and the Andamans, Bihar, Orissa, Madhya Pradesh, in the west coast from Konkan southwards to Malabar and Travancore.

ARUM (*Araceae*)

A. curvatum Roxb.; see **Arisaema tortuosum** Schott (Stewart).

ARUNCUS (*Rosaceae*)

A. sylvester Kostel.

HCN-glucd. (*Liebigs Ann.*, 1852, 175; *C.R. Acad. Sci., Paris*, 1906, 451); saponin (*Kew Bull.*, 1909, 417); a crystalline antibiotic isolated (*Nature, Lond.*, 1946, 511; *Chem. Abstr.*, 1946, 4854).

Western and central temperate Himalayas; from Sirmore, 10,000 ft., to Nepal.

ARUNDINELLA (*Gramineae*)

A. brasiliensis (Fl. Br. Ind., VII, 73, non Raddi); see **A. nepalensis** Trin.

A. nepalensis Trin. syn. *A. brasiliensis* (Fl. Br. Ind., VII, 73, non Raddi).

Bo.-*Dundi.*

In Basutoland the plant is used in compounding many medicines and in making a lotion for washing wounds.

Throughout the hilly parts of India ascending to 7,000 ft.

ARUNDO (*Gramineae*)

A. donax Linn.

H.-*Bara nal*; B.-*Gaha nal*; P.-*Bansi.*

Decoct. of rhizomes—emol., diur., said to stimulate menstrual discharge and diminish the secretion of milk.

Contains 0·028% gramine (donaxine), a new alk. donaxarine; gramine-HCl raises blood pressure, contracts isolated intestine and uterus of rabbits (*J. chem. Soc.*, 1937, 1927; *Proc. Soc. exp. Biol., N.Y.*, 1945, 1; *Chem. Abstr.*, 1938, 1704;

1945, 1687); gramine in small doses raises blood pressure in dogs, but in larger doses causes a fall; its action is similar to *d*-pseudo ephedrine (Henry, 1939, 448).

Lower Himalayas from Kashmir to Nepal, ascending to 3,500 ft., from the Punjab to Sylhet, the Naga Hills, up to 5,000-8,000 ft., the Circars, Coorg, Nilgiri Hills.

ASAGRAEA (*Liliaceae*)

A. officinale Lindl.

Used externally to destroy pediculi.

A native of Mexico.

ASARUM (*Aristolochiaceae*)

A. europaeum Linn.

S.–*Upana*; H. & Bo.–*Taggar*.

Roots and leaves—emetic, cath.

Essen. oil, glucd. (*J. Pharm. Chim., Paris*, 1911, 399; *Ber. dtsch. chem. Ges.*, 1888, 1057); bornyl acetate, methyl eugenol, asarone (*J. prakt. Chem.*, 1932, 107; *Ber. Schimmel u. Co., Lpz.*, 1933, 32); roots—1·17% alk. asarine and asarone; leaves—asarone and a glucd.; toxicity of root is low; its effect on frogs, rabbits and dogs includes accelerated respiration, local stimuli, nausea and emesis (*Farmatsiya, Mosk*, No. 4, 1945, 39; *Chem. Abstr.*, 1946, 7411).

Indigenous to temperate Europe and North Asia.

ASCLEPIAS (*Asclepiadaceae*)

A. curassavica Linn.

H., Bo. & P.–*Kakatundi*; Marathi–*Kurki*.

Root—emetic, purg., remedy in piles and gonor.

Juice of leaves—anthelm., sudorific, for arresting haemorrhages and gonor.

Plant—in phthisis, poisonous.

Glucd. asclepiadin, vincetoxin (*Arch. exp. Path. Pharmak.*, 1885, 389; *C.R. Acad. Sci., Paris*, 1885, 277; *J. Pharm. Chim., Paris*, 1884, 210; Burkill, I, 261).*

Often grown in gardens and naturalized in Bengal and many parts of India.

ASPARAGUS (*Liliaceae*)

A. adscendens Roxb.

H. & Marathi–*Safed musli*; Bo.–*Sapheta musali*; Garhwal–*Jhirna*; Gujarati–*Ujli musli*.

Roots—demulc., galact., tonic, useful in diar., dysen. and general debility.

Asparagin.

Punjab and the Himalayas up to 5,300 ft.

A. filicinus Buch.-Ham.

P. & Kash.–*Allipalli*.

Root—tonic and astrin.

Temperate and tropical Himalayas, from Kashmir to Bhutan, Khasia Hills, Assam.

A. gonocladus Baker

B.–*Satmuli*; Bo.–*Shatavari*; H.–*Shakakul*; Marathi–*Satavarimul*; Tam.–*Kilavari*; Tel.–*Pillipichara*.

Root—aphrodis., boiled with oil, applied to cutaneous diseases, given in gonor.

Konkan, Kanara, W. Ghats of Madras State.

A. officinalis Linn.

H.–*Halyun*; B.–*Hikua*; Arab. & Pers.–*Halgun*.

Plant—demulc., diur., laxt., cardiac, sedative, tonic, aphrodis.

Roots—more diur. than shoots, in infusion used against jaundice and congestive torpor of the liver.

Essen. oil, asparagin, tyrosin (*Arch. exp. Path. Pharmak.*, 1894, 205; *Ber. dtsch. chem. Ges.*, 1909, April-Sept.; *Hoppe-Seyl. Z.*, 1913, 245).

Cultivated in India.

A. punjabensis Linn.

S.–*Sensarpal*.

Plant is put in the hands of smallpox patients as a curative measure.

Leaves—officinal in Punjab (Stewart).

Common in Punjab plains, east to Sutlej, Salt Range and on the Sutlej up to 5,500 ft., trans-Indus.

A. racemosus Willd.

S. & B.–*Shatamuli*; H.–*Satawar*; Bo.–*Satavari*; Tam.–*Shimai shadavari*; Tel.–*Challagadda*; Mal.–*Shatavali*.

Root—refrig., demulc., diur., aphrodis., antisp., alter., antidiar., antidysen., galact. and as demulc. in veterinary medicine.

Throughout tropical and subtropical India, up to 4,000 ft. in the Himalayas, from Kashmir eastwards.

A. sarmentosus Linn.

Roots—aphrodis., nourishing.

Throughout India.

ASPHODELUS (*Liliaceae*)

A. fistulosus Linn.

P.–*Piazi*.

Seeds—diur.

Indo-Gangetic Plain, from Bengal to Punjab. A weed.

A. tenuifolius Cav.

P.–*Piazi*, *Bokat*; H.–*Bokat*, *Pyajh*; Gujarati–*Dungru*; Arab. & Pers.–*Ashrash*.

Seeds—diur., applied externally to ulcers and inflamed parts.

Indo-Gangetic Plain, from Bengal to Punjab. A weed.

ASPIDIUM (*Polypodiaceae*)

A. falcatum Sw.; see **Cyrtomium falcatum** Presl

A. filix-mas Sw.; see **Dryopteris filix-mas** (Linn.) Schott

A. polymorphum Wall.

Plant—anthelm.

Western forests of Madras State up to 4,000 ft., in N. India from Garhwal to Mishmee and Chittagong.

ASPLENIUM (*Polypodiaceae*)

A. adiantum-nigrum Linn.

English-*Black spleen wort.*

Plant—bitter, diur., laxt., useful in ophthalmia, diseases of spleen, jaundice, produces sterility in women.

Decoct. or syrup of fronds—used in Europe as expect., pectoral and emmen.

Kashmir, 5,000-8,000 ft., extending to Dalhousie and Chamba.

A. ceterach Linn.; see **Hemidictyum ceterach** Linn.

A. falcatum Lam.

Bo.-*Pana*; M.-*Nela panna maravara.*

Plant—used in enlargement of spleen, incontinence of urine, calculus, jaundice, malaria.

Madras State in western mountains.

A. furcatum Thunb.

Rhizome—used as an anthelm. in Basutoland.

Higher western mountains of S. India and in Ceylon at 5,000-7,000 ft.

A. parasiticum Willd.

Bo.-*Moha pana*; M.-*Kari-beli-panna-maravara.*

Uses same as of *A. falcatum.*

A. ruta-muraria Linn.

English-*Wall Rue.*

Herb—used as expect., deobstruent, subst. for Maidenhair.

Leaves—used as cure for rickets.

Kashmir.

A. trichomanes Linn.

Tam.-*Mailakkondei.*

Plant—laxt., expect.

Leaf—smoked for cold in the head and chest.

Nilgiris, Kashmir to Kumaon, 5,000-10,000 ft., very common in the Simla region from 5,000 to 9,000 ft.

ASTER (*Compositae*)

A. amellus Linn. syn. *A. trinervius* Roxb.

The Chinese use the roots for coughs, pulmonary affections, in haemor. and malaria (Chinese Materia Medica).

Central and Western Himalayas, Nepal, Sikkim, at 5,000-7,000 ft., Mishmee mountains, Khasia Hills at 3,000-6,000 ft.

A. trinervius Roxb.; see **A. amellus** Linn.

ASTERACANTHA (*Acanthaceae*)

A. auriculata Nees; see **A. longifolia** Nees

A. longifolia Nees syn. *Hygrophila spinosa* T. Anders.

S.-*Kakilakshya*; H.-*Tal-makhana*; B.-*Kuliakhara*; Bo.-*Talim khana*; M.-*Nirmalli.*

Decoct. of roots—diur.

Seeds—given for gonor. and with milk sugar in spermatorrhoea.

Leaves, roots and seeds—diur., employed for jaundice, dropsy, rheumatism, anasarca and diseases of the urino-genital tract.

Phytosterol (*Meded. PlTuin, Batavia,* 1897, 74; 1899, 137); root—essen. oil (*J. Indian chem. Soc.,* 1931, 23); diur. properties of seeds due to large amount of mucilage and potassium salts (*Indian J. med. Res.,* 1934, 268); seeds contain 23% of a yellow semi-drying oil (*Oil & Soap,* 1941, 296); seeds contain diastase, lipase and protease (*J. Univ. Bombay,* 1945, 15; *Chem. Abstr.,* 1945, 4191); contains an alk. (*Quart. J. Pharm.,* 1947, 38; *Chem. Abstr.,* 1947, 7671).

Throughout India in moist places.

ASTERIASTIGMA (*Bixaceae*)

A. macrocarpa Bedd.

M.-*Vellanangu.*

Oil from seeds is believed to be a valuable medicine (*C.R. Acad. Sci., Paris,* 1925, 181, 1089).

Chaulmoogric acid 75% (*J. Soc. chem. Ind., Lond.,* 1931, 7T; *Chem. Zbl.,* 1931, I, 1849).

A large tree found in the sholas or evergreen forests of Mysore, Tinnevelly and Travancore from about 1,000 to 4,000 ft.

ASTRAGALUS (*Leguminosae*)

A. hamosus Linn.

H.-*Purtuk*; Arab.-*Asabeaulmalik*; Bo.-*Akhlilelmalik*; P.-*Akhilulmalik.*

Plant—emol., demulc., useful in the irritation of mucous membranes, laxt., used in nervous affections, lactag., used in catar. affections.

A gum-like tragacanth, saponin (*Pharm. Zentralh.,* 1924, 637; *Apothekerztg, Berl.,* 1924, 632).

Baluchistan, Sind and Punjab plains.

A. heratensis Bunge

Pers.-*Gabina.*

Gum—subst. for tragacanth gum.

Afghanistan.

A. multiceps Wall.
P.–*Kandiara, Sarmul.*

Seeds—given for colic and leprosy, demulc., emol.

W. Himalayas in the temperate zone, 10,000-12,000 ft., Garhwal, Kumaon, Simla.

A. sarcocola Dymock
H.–*Anjira*; Bo.–*Gujar.*

Gum—aper., emol., anti-rheumatic, anthelm. (*Apothekerztg, Berl.*, 1920, 113; 1924, 632; *Pharm. Zentralh.*, 1924, 637).

Persia.

A. strobiliferus Royle
Pers.–*Kon, Jib*; Chitral–*Garmezu.*

Gum—subst. for tragacanth (*Pharm. Zentralh.*, 1924, 637; *Apothekerztg, Berl.*, 1924, 632).

W. Himalayas, from Kashmir to Kunawar, 8,000-13,000 ft., Upper Kurram, Birmolast in Chitral at 5,500 ft.

A. tribuloides Delile
P.–*Ogai.*

Seeds—demulc., emol. (*Pharm. Zentralh.*, 1924, 637; *Apothekerztg, Berl.*, 1920, 113; 1924, 632).

Plains of western and central Punjab.

A. verus Oliver

Gum—emol., demulc.

Persia.

ASYSTASIA (*Acanthaceae*)

A. coromandeliana Nees; see **A. gangetica** T. Anders.

A. gangetica T. Anders. syn. *A. coromandeliana* Nees
S.–*Lavana-valli*; M.–*Medday keerai*; Sing.–*Puruk.*

Juice of the plant—anthelm., given in swellings and rheumatism.

Traces of alk. (*Meded. PlTuin, Batavia*, 1897, XVIII, 74; XXVI, 137).

N. Circars, Deccan, Carnatic, W. Peninsula.

ATALANTIA (*Rutaceae*)

A. monophylla Corr. = **A. malabarica** (Rafin.) Tanaka
S.–*Atavi-jambira*; Marathi–*Makadlimbu*; Tel.–*Adavi-nimma*; Mal.–*Katlunarenga*; Tam.–*Kattukkichili.*

Oil from berries—used externally in chronic rheumatism and paralysis.

Root—antisp., stim.

Leaves—in snake-bite.

Essen. oil from fresh leaves varies from 0·4 to 0·6% on dry basis (*Proc. Soc. biol. Chem. India*, 1937, 16; *Chem. Abstr.*, 1938, 1864).

Konkan, S. Mahrata Country, N. Kanara, Madras State, W. Coast, W. Ghats, Carnatic, Deccan, N. Circars, Assam.

ATHYRIUM (*Polypodiaceae*)

A. filix-femina Roth
English–*Lady fern.*

Rhizome—sometimes used as subst. of Male fern; unlikely to be of any value as an anthelm. (*Chem. Abstr.*, 1940, 5492).

All along the Himalayas from Afghanistan to Sikkim at 6,000-13,000 ft., and extends to Sind and the Bombay State.

ATRIPLEX (*Chenopodiaceae*)

A. hortensis Linn.

Flour of the seeds—reported valuable in vitamin A deficiency (*Chem. Abstr.*, 1941, 581).

Seeds—saponin (*Pharm. Zentralh.*, 1926, 435); betanin (*J. chem. Soc.*, 1932, 1439).

Cultivated in the plains of Bengal and the Deccan. Wild in the trans-Indus region.

ATROPA (*Solanaceae*)

A. acuminata Royle ex Lindley
English–*Indian Belladonna.*
Kash.–*Mait-brand*; P.–*Bantamaku*; H.–*Sag-angur*; B.–*Yebrui*; Bo.–*Girbuti.*

Roots and leaves—narcotic, sedative, diur., mydriatic, used as an anodyne.

Berries — poisonous.

Total alk. content in the Himalayan plant 0·81% in roots and 0·5% in leaves (*Indian J. med. Res.*, 1926, 535); constituents of Indian belladonna leaves resemble those of the European species *A. belladonna*; leaves contain 0·13-0·78% of alks. calculated as hyoscyamine with average of 0·45%; Indian roots contain 0·29-0·8% of alks. calculated as hyoscyamine with average of 0·47% (Wealth of India, I, 135; I.P.C., 37, 39).

Kashmir, 6,000-12,000 ft., Chamba, Baluchistan.

A. belladonna Linn.
English–*Belladonna.*

Roots and leaves—narcotic, sedative, diur., mydriatic, used as an anodyne.

Berries — poisonous.

Atropine, hyoscyamine (*Pharm. J.*, 1889, 461; *J. chem. Soc.*, 1899, 72; 1901, 71; 1908, 2077; 1912, 957); leaves contain 0·15-0·7% (av. 0·4%) of total alks. calculated as hyoscyamine, also minute quantities of other alks. (belladonnine, etc.), β-methyl-aesculetin (scopoletin, chrysatropic acid), small amount of volatile bases, pyridine, etc.; roots contain from 0·6 to 0·66% of total alks. (I.P.C., 37, 39; Wealth of India, I, 136).

Cultivated to a small extent in Kashmir at Baramulla, Darang and Yarikah.

ATYLOSIA (*Leguminosae*)

A. barbata Baker; see **A. goensis** Dalz.

A. goensis Dalz.
S.–*Mashaparni*; M.–*Peruvidukol.*
Roots—in rheumatism, billiousness, fever, consumption and swelling.
Assam, Konkan.

A. scarabaeoides Benth.
Sing.–*Walkollu.*
Plant—used for diar. in cattle.
Throughout India, up to 5,000 ft. on the W. Himalayas.

AURICULARIA (*Auriculariaceae*)

A. sambucina Mart.
English–*Jews' ear, Judas' ear.*
Fungus—emetic, purg., used against inflam. and all other sorenesses of throat, being boiled in milk, steeped in beer, vinegar, etc.
Grows upon the roots and lower parts of the bodies of trees; especially of elders and ashes.

AVENA (*Gramineae*)

A. fatua Linn.
H.–*Ganer, Kuljud*; P.–*Ganerjei, Upwa.*
Seeds—believed as poisonous, used in Europe as emol., refrig. and diur.
Punjab, N.W. Himalayas, Sikkim Himalayas, W. Tibet, ascending to 9,000 ft.

A. sativa Linn.
English–*Oat.*
Seeds—nerve tonic, stim., laxt., antisp.
As 50 mg. in 100 g. fresh plant and 62 mg. in dry (*C.R. Acad. Sci., Paris*, 1914, 268; *Chem. Zbl.*, 1914, II, 885); oxalic acid, iodine (*J. Amer. chem. Soc.*, 1933, 3046); whole grain contains vitamin B_1 (Booher, Hortzler & Hewston, 134); particularly rich in fat and proteins (*J. Nutrit.*, 1938, 249).
Cultivated in N. India from Bengal to the Indus and in the Himalayas up to 12,000 ft.

A. sativa Linn. var. **orientalis** Hook. f.
Seeds—used in Spain as emol., refrig. and diur.
N.W. India, the Son Valley, Murshidabad.

AVERRHOA (*Oxalidaceae*)

A. bilimbi Linn.
H. & B.–*Bilimbi*; Gujarati & Bo.–*Blimbu*; Tel.–*Bilumbi.*
Fruit — astrin., stomch., refrig., in form of curry useful in piles and scurvy.
Fruit contains 42·2% of juice of *p*H 4·47 (*Philipp. Agric.*, 1938, 644).
Cultivated in gardens throughout the plains of India, also naturalized and run wild in the tropical parts of India.

A. carambola Linn.
H.–*Karmal, Kamrakh*; B.–*Kamranga*; Bo.–*Karamara*; Tam.–*Tamarattai*; Tel.–*Tamarta.*
Dried fruits—cooling, antiscor., used in fevers.
Ripe fruit—remedy for bleeding piles and useful in relieving thirst and febrile excitement.
Acid potassium oxalate; vitamin A (*Hlth Bull.*, No. 23, 1941, 38).
Cultivated in gardens throughout the hotter parts of India.

AVICENNIA (*Verbenaceae*)

A. officinalis Linn.
B. & H.–*Bina*; Bo.–*Tivar*; S.–*Tuvara*; Tel.–*Nallamada*; Tam.–*Madaipattai.*
Bark—astrin.
Root—aphrodis.
Unripe seeds—used as poultice to hasten suppuration of boils and abscesses.
Tannin (*Arch. Pharm., Berl.*, 1913, 351); bark—2·5% tannin (*Indian For. Rec.*, 1924, 238).
Salt marshes and tidal forests of India.

A. tomentosa Jacq.
H. & B.–*Bina*; Bo.–*Cheria*; Tel.–*Madachettu*; Mal.–*Upputti*; Marathi–*Twai.*
Root—aphrodis.
Bark—astrin.
Unripe seeds—used as poultice to hasten suppuration of boils and abscesses.
Lapachol (*Arch. Pharm., Berl.*, 1913, 351).
On seashores and margins of estuaries of India.

AZADIRACHTA (*Meliaceae*)

A. indica A. Juss. syn. *Melia azadirachta* Linn.
B., Bo. & H.–*Nim*; S.–*Nimba*; Tam., Tel. & Mal.–*Vepa.*
Bark—bitter tonic, astrin., antiper.
Bark, root bark and young fruit—tonic, antiper., alter.
Leaves—as poultice applied to boils.
Decoct. of leaves—antisep., used in ulcers and eczema.
Gum—demulc., tonic, in catar. affections.
Dry flowers—tonic, stomch.
Oil—stim., antisep., alter., in rheumatism and skin diseases.
Bark, gum, leaf and seed—in snakebite and scorpion-sting.
Berries—purg., emol., anthelm.
Bitter oil (*J. Soc. chem. Ind., Lond.*, 1923, 387; *Arch. Pharm., Berl.*, 1910, 171;

Analyst, 1903, 342); bitter oil—margosic acid (*J. Indian chem. Soc.*, 1931, 773; 1940, 189); oil from seeds contains two bitter substances (*Indian J. Pharm.*, 1940, 206; *Chem. Abstr.*, 1942, 2685); seeds contain up to 45% of oil (*Proc. Indian Acad. Sci.*, 1942, 167); bitter constituents seperated from *nim* oil—nimbin, nimbinin and nimbidin; nimbidin main active constituent and contains sulphur (*Curr. Sci.*, 1942, 278; *Chem. Abstr.*, 1943, 723); blossoms yield a glucd. nimbosterin (0·005%) and 0·5% of a highly pungent essen. oil, nimbosterol, nimbecetin and fatty acids (*J. sci. industr. Res.*, 1947, 19B; *Chem. Abstr.*, 1947., 6021); flowers contain a bitter substance and an irritant bitter oil (*Curr. Sci.*, 1947, 182; *Chem. Abstr.*, 1948, 326); fruits—bitter principle, bakayanin (*J. sci. industr. Res.*, 1948, 69B; *Chem. Abstr.*, 1948, 7939); trunk bark yields 0·04 nimbin, 0·001 nimbinin and 0·4 nimbidin, essen. oil 0·02% (*J. sci. industr. Res.*, 1949, 188B; *Chem. Abstr.*, 1950, 3097).

Wild in the dry forests of the Deccan. It is often planted all over India.

AZIMA (*Salvadoraceae*)

A. tetracantha Lam.

S.–*Kundali*; H.–*Kantagurkamai*; B.–*Trikanta-gati*; Dec.–*Sukkapat*; M.–*Sanganjedi*; Tam.–*Ichanka*; Tel.–*Tella-upi*.

Root—diur., in rheumatism, given in dropsy.

Root bark—in rheumatism.

Leaves—stim., given with food as remedy for rheumatism.

Juice of leaves—to relieve cough of phthisis and asthma.

Bark—expect.

Konkan, Deccan, S. Mahrata Country, Circars, Carnatic, Orissa, Sundarbans.

BACOPA (*Scrophulariaceae*)

B. monnieri (Linn.) Pennell syn. *B. monniera* Wettst.; *Herpestis monniera* (Linn.) H. B. & K.; *Moniera cuneifolia* Michx.

S.–*Nira-brhahmi*; H.–*Brahmi*; B.–*Brihmi-sak*; Tam. & Mal.–*Nirbrahmi*.

Plant—nerve tonic, used in asthma, epilepsy, insanity, hoarseness; diur., aper.

Stem and leaves—in snake-bite.

Alk. brahmine; its therapeutic action resembles strychnine, but is less toxic (*J. Indian med. Ass.*, 1931, Oct.); three bases isolated, B$_1$ oxalate, B$_2$ oxalate, B$_3$ chloroplatinate and a sterol (*Indian J. Pharm.*, 1944, 91; *Chem. Abstr.*, 1946, 3227); contains alk. herpestine (*Quart. J. Pharm.*, 1947, 137; *Chem. Abstr.*, 1948, 1025).

Throughout India in wet, damp and marshy areas.

BALANITES (*Simarubaceae*)

B. aegyptiaca (Linn.) Delile syn. *B. roxburghii* Planch.

S.–*Ingudi*; H. & B.–*Hingan*; Bo.–*Hinganbet*; Tam.–*Nanjunda*; Tel.–*Gari*.

Bark, unripe fruit and leaves—purg., anthelm.

Seeds—expect., given in cough and colic.

Plant—in snake-bite.

Bark—used as anthelm. for cattle and its juice as fish poison.

Saponin (*Arch. Pharm., Berl.*, 1901, 363); seed kernels—a saponin, a tetraglucoside of a sapogenin; acid hydrolysis gives nitogenin; it is an active haemolytic agent; toxicity for tadpoles similar to digitonin (*J. chem. Soc.*, 1939, 800; *Chem. Abstr.*, 1939, 6325).

Drier parts of India from south-east Punjab and Delhi to Sikkim, Bihar, Gujarat, Khandesh and the Deccan.

B. roxburghii Planch.; see **B. aegyptiaca** (Linn.) Delile

BALIOSPERMUM (*Euphorbiaceae*)

B. axillare Blume; see **B. montanum** Muell.-Arg.

B. montanum Muell.-Arg.

S., H. & B.–*Danti*; Bo.–*Dantimul*; Mal.–*Naka-danti*; Tam.–*Niradimuttu*; Tel.–*Nelajidi*.

Seeds—purg., used externally as stim. and rubft., and in snake-bite.

Root—cath., used in dropsy, anasarca and jaundice.

Decoct. of leaves—in asthma.

Oil from seeds—hydrogogue cath., external application in rheumatism.

Outer ranges of the Himalayas from Kashmir to Bhutan up to 3,000 ft., Assam, Khasia Hills, N. and E. Bengal, Bihar, from Central and Western India to Travancore.

BALLOTA (*Labiatae*)

B. limbata Benth.; see **Otostegia limbata** Benth.

BALSAMODENDRON (*Burseraceae*)

B. mukul Hook. ex Stocks; see **Commiphora mukul** (Hook. ex Stocks) Engl.

B. myrrha T. Nees; see **Commiphora myrrha** (Nees) Engl.

B. opobalsamum Kunth; see **Commiphora opobalsamum** (Linn.) Engl.

B. playfairii Hook. f.; see **Commiphora playfairri** Hook. f.

B. roxburghii Arn.; see **Commiphora roxburghii** (Arn.) Engl.

BAMBUSA (*Gramineae*)

B. arundinacea Willd.; see **B. bambos** Druce

B. bambos Druce syn. *B. arundinacea* Willd.

S.-*Vansh*; B. & H.-*Bans*; Bo.-*Mandgay*; Tam. & Mal.-*Mungil*; Tel.-*Bongu-veduru.*

Leaves—emmen., used in haemetemesis and vet. practice; given to horses as remedy for coughs and colds.

Bamboo manna — tonic, useful in fever, cough, in snake-bite, etc.

Cholin, betain (*Hoppe-Seyl. Z.*, 1909, 113; 1911, 388); nuclease, urease, proteolytic enzyme, diastatic and emulsifying enzyme (*Hoppe-Seyl. Z.*, 1911, 456); 'bangsolochan', 'tabashir' (*Biederm. Zbl.*, 1887, 789); young shoots contain a cyanogenetic glucd. and are poisonous; the glucd. is hydrolysed by an enzyme, also present in the shoots, when they are cut into pieces and soaked in water (*Indian med. Gaz.*, 1943, 41); oxalic acid (*Chem. Zbl.*, 1931, I, 3692; *Indian med. Gaz.*, 1933, 320; 1943, 41); young shoots—0·03% HCN, 0·23% benzoic acid, 2·5% reducing sugar, resins and waxes; sprout juice—0·027% HCN, 0·16% benzoic acid; green leaves contain no HCN or benzoic acid (*Arch. Pharm., Berl.*, 1938, 351; *Chem. Abstr.*, 1938, 8690); young shoots lethal to mosquito larvae (*J. Bombay nat. Hist. Soc.*, 1941, 865).*

Wild throughout the greater part of the country, especially in the hill forests of western and southern India, ascending up to 3,000 ft. on the Nilgiris, also found in Orissa, Assam and eastern Bengal. Cultivated only in the lower Himalayas and in the valleys of the Ganges and Indus.

B. vulgaris Schrad.

B.-*Basinibans*; Bo. & Marathi-*Kalaka*; Tam.-*Ponmungil.*

Roots, shoots, bark and leaves—all used medicinally in China, roots and shoots considered emol., diur., diaphor.

Bark—astrin., used in haemor., excessive menstruation, nausea and vomiting.

Cultivated throughout tropical India. Also occurs wild in warmer parts of India.

BARBAREA (*Cruciferae*)

B. vulgaris Br.

In Spain leaves reputed as vulnerary.

In La Reunion plant used as stim. and antiscor.

Temperate and subalpine Himalayas and Western Tibet at 6,000-10,000 ft.

BARLERIA (*Acanthaceae*)

B. buxifolia Linn.

Roots and leaves—in cough and inflam.

S. Deccan Peninsula, Courtallum, Konkan.

B. ciliata Roxb.; see **B. cristata** Linn.

B. courtallica Nees

S.-*Chethasahacharam*; M.-*Venkurunji.*

Decoct. of root—given in rheumatism and pneumonia.

Leaves—boiled in oil used in ear and and eye diseases.

W. Peninsula.

B. cristata Linn. syn. *B. ciliata* Roxb.

S. & B.-*Jhinti*; P.-*Tadrelu*; Tam.-*Udamulli*; Tel.-*Kodikannu*; Assam-*Jhinli.*

Roots and leaves—used to reduce swelling.

Infusion—given in cough.

Plant—in snake-bite (N. Sen; Prain)

Throughout India.

B. cristata Linn. var. **dichotoma**

Plant—stim., demulc.

Often planted near temples but also grown in gardens in India.

B. dichotoma Roxb.; see **B. cristata** Linn. var. **dichotoma.**

B. longiflora Linn. f.

S.-*Adyanda*; Tel.-*Pinnagorata*; Oriya-*Koilekha.*

Decoct. of the root—given in stricture, dropsy and stone.

S. Deccan Peninsula, Tinnevelly.

B. noctiflora Linn. f.

Decoct. of plant—used as an adjunct to, and subst. for, human milk.

Deccan, Carnatic.

B. prionitis Linn.

Bo.-*Vajra danti*; B.-*Kantajati*; H.-*Katsareya*; Tam. & Mal.-*Shemmuli*; Tel.-*Mullugoranta*; S.-*Karunta.*

Juice of leaf—used in catar. affections of children, which are accompanied by fever and much phlegm.

Dried bark—in cough.

Juice of bark—in anasarca.

Leaves—chewed to relieve toothache.

Paste of root—applied to disperse boils and glandular swellings.

Decoct. of plant—in dropsy to wash the body.

Alk. (*Meded. PlTuin, Batavia*, 1897, XVIII); plant rich in potassium (Wehmer, II, 1144).

Throughout the hotter parts of India.

B. strigosa Willd.

B.–*Dasi*; Santh.–*Raila-baha*; Bo.–*Wahiti*; S.–*Nilakusuma*; Tam.–*Nili*; Tel.–*Nilambaramu*; Mal.–*Nilakurnni*.

Root—used in severe spasmodic cough.

Upper Gangetic Plain, Bengal, Assam, Sikkim, Konkan, Deccan, S. Mahrata Country, N. Circars. Cultivated in gardens.

BARRINGTONIA (*Lecythidaceae*)

B. acutangula (Linn.) Gaertn.

S.–*Dhatriphala*; B.–*Hijal*; H.–*Hijjal*; Bo.–*Samundarphal*; Tam.–*Kadappai*; Tel.–*Kadapa*; Marathi–*Piwar*; M.–*Samutra-pallam*.

Powdered seed—emetic, expect. and as snuff in headache.

Bark, root and seed—fish poison.

Leaves and roots—bitter tonic.

Root—cooling, aper.

Juice of leaves—in diar.

Glucd.-saponin barringtonin (*Pharm. Weekbl.*, 1903, 729; *Proc. Indian Sci. Congr.*, 1937, 390); bark contains 16% tannin (*Indian For. Leafl.*, No. 72, 1944, 5).

Common in the sub-Himalayan tracts, east of the Jumna, in Bihar, Orissa, Bengal, Assam, Madhya Pradesh and South India.

B. asiatica (Linn.) Kurz syn. *B. speciosa* Forst.

Burm.–*Kyi*; Andaman–*Dodda*; Sing.–*Mudilla*; Tam.–*Samuttira*; Tel.–*Suraponna*.

Bark and fruit—narcotic, pulped and used to stupefy fish.

Glucd.-saponin barringtonin (*Pharm. Weekbl.*, 1903, 729); kernel—HCN in high concentration (*Trans. R. Soc. trop. Med. Hyg.*, 1938, 295; *Chem. Abstr.*, 1939, 1446).

Native of the Andamans, Ceylon and Singapore; also occurs in the southern Deccan Peninsula, but not in wild state.

B. racemosa (Linn.) Roxb. syn. *B. racemosa* Blume

S.–*Nipa*; H.–*Ijjul*; B.–*Samudraphal*; Mal.–*Samudrappu*; Tam.–*Sugadaru*; Tel.–*Samundrapandu*.

Root—deobstruent, cooling.

Fruit—in cough, asthma and diar.

Kernels of the drupes—with milk given in jaundice and other bilious diseases.

Seeds—in colic and ophthalmia.

Seeds and bark—vermifuge, fish poison, tonic and insecticidal.

Glucd.-saponin (*Ann. appl. Biol.*, 1934, 649; *Proc. Indian Sci. Congr.*, 1937); bark—18% tannin (*Indian For. Leafl.*, No. 72, 1944, 5); alcoholic and cold and warm aqueous extracts of bark are toxic to citrus aphis at concentrations of 2-2·5% of bark; bulk of the toxic principles found in the resin fraction; but this plant is not likely to replace the more potent insecticides of the derris class (*Kew Bull.*, 1940, 170).

Western sea coast of India from Konkan to Travancore, Sundarbans, Assam, Andaman Islands.

B. speciosa Forst.; see **B. asiatica** (Linn.) Kurz

BASELLA (*Basellaceae*)

B. alba Linn.

Properties similar to *B. rubra*. Perhaps this is not more than a var. or form of **B. rubra** Linn. which see.

B. rubra Linn.

S.–*Potaki, Putika*; H.–*Lalbachlu, Poi*; B.–*Rakto-pui, Poi*; Bo.–*Velgond*; M.–*Pasalei*; Tam.–*Vaslakkirai*; Tel.–*Batsala*; Mal.–*Basala*.

Leaves—demulc., diur., useful in gonor. and balanitis.

Juice of leaves—used in urticaria, and in cases of constipation particularly in children and pregnant women.

Vitamins A and B (*Philipp. J. Sci.*, 1930, 387; *Chem. Zbl.*, 1930, II, 82); plant contains protein, calcium, iron, vitamins (*Indian J. med. Res.*, 1933, 447; Corpn Calcutta, Food Values of Common Indian Food-stuffs, 1943, 4).

Throughout India, wild or cultivated.

BASSIA (*Sapotaceae*)

B. butyracea Roxb.; see **Madhuca butyracea** (Roxb.) Macbride

B. latifolia Roxb.; see **Madhuca indica** J. F. Gmel.

B. longifolia Linn.; see **Madhuca longifolia** (Linn.) Macbride

B. malabarica Bedd.; see **Madhuca malabarica** (Bedd.) R. N. Parker

BAUHINIA (*Leguminosae*)

B. macrostachya Wall.

B.–*Gunda-gilla*.

Plant—used in skin lesions.

Sylhet, Assam.

B. malabarica Roxb.

Assam.–*Kattra*; B.–*Karmai*; H.–*Amli*; Tam.–*Malaiyatti*; Tel.–*Pulishinta*.

In Indo-China and the Philippine Islands the infusion of the new flowers is given in dysen.

Bark contains 9-12% tannin (*Indian For. Leafl.*, No. 72, 1944, 5).

Sub-Himalayan tracts, Bengal, Assam, S. India.

B. purpurea Linn.

S.–*Vanaraja*; H.–*Khairwal, Kaliar*; B. & Marathi–*Raktakanchan*; P.–*Koiral*; Tam.–*Mandari*; Tel.–*Kanchanam.*

Bark—astrin. in diar.

Root—carmin.

Flowers—laxt.

Tree yields gum; bark contains tannin; seeds contain 15% of a non-drying oil (*Chem. Abstr.*, 1933, 202; 1934, 5266).

Sub-Himalayan tracts up to 4,000 ft., Assam, Khasia Hills, Chittagong, W. Peninsula. Often cultivated.

B. racemosa Lam.

S.–*Svetakanchan*; H.–*Kachnal*; B.–*Banraj*; Bo.–*Wanurajah*; P.–*Kosundra*; Tam.–*Arikka*; Tel.–*Pachare*; Mal.–*Kotapuli.*

Gum—used medicinally.

Decoct. of leaves—in headache and malaria.

Bark—astrin., in diar. and dysen.

Throughout India.

B. retusa Roxb.

H.–*Kandla, Semla*; P.–*Kural*; Tel.–*Nirpa.*

Gum—used as application for sores, emmen., diur. (*Pharm. J.*, 1892, 1073).

N.W. Himalayas up to 4,000 ft. in the forests of Siwaliks, Oudh, Orissa, N. Circars, Madhya Pradesh.

B. tomentosa Linn.

S.–*Aswamantaka, Phalgu*; H.–*Kachnar*; Bo.–*Asundro*; M.–*Mandarai*; Mal.–*Kanjanam*; Tam.–*Kanjani*; Tel.–*Kanjini.*

Decoct. of root bark—given in inflam. of liver, anthelm.

Buds and young flowers—in dysenteric affections.

Fruit—diur.

Plant—used in snake-bite and scorpion-sting.

Bundelkhand, Circars, Carnatic, in dry forests from the Chilka Lake to Tinnevelly, in other parts of India often cultivated.

B. vahlii W. &. A.

H.–*Maljan, Jallur*; B.–*Sihar, Chehur*; Tel.–*Adda.*

Seeds—tonic, aphrodis.

Leaves—demulc., mucilaginous.

Yields gum (*Pharm. J.*, 1892, 1073); outer bark yields 17% tannin; stem contains 8% tannin (*Indian For. Leafl.*, No. 72, 1944, 5).

Sub-Himalayan region up to 3,000 ft., Assam, Madhya Pradesh, Bihar.

B. variegata Linn.

S.–*Kovidara*; H.–*Kachnar*; B.–*Raktakanchan*; Tam.–*Segapu-manchori*; Tel.–*Mandara.*

Bark—alter., tonic, astrin., useful in skin diseases, ulcers and in scrofula.

Dried buds—used in dysen. and piles, diar. and worms.

Decoct. of root—in dyspep.

Root—antid. to snake poison.

Tree yields gum; bark—tannin (*Pharm. J.*, 1892, 1073); seeds yield fatty oil (*J. Indian chem. Soc.*, 1940, 96).

Sub-Himalayan tract from the Indus eastwards, also dry forests of eastern, Central and South India.

BEGONIA (*Begoniaceae*)

B. rex Putzeys

Plant—used as subst. for rhubarb.

Juice—poisonous to leeches.

Assam and Mishmee Hills.

BELAMCANDA (*Iridaceae*)

B. chinensis DC.

Assam–*Surjakanti.*

Roots—aper., resolv., antid. to snake poison.

Pulp of stem—considered stomch.

Rhizome—important drug in Chinese materia medica and chief remedy for tonsillitis and given in chest and liver complaints and added to tonics.

Glucd. shekanin isolated from the rhizomes of this plant and tectoridin from *Iris tectorum* Max. are identical (*Arch. Pharm., Berl.*, 1937, 317; *Chem. Abstr.*, 1937, 7059); crystalline glucd. belamcandin isolated from roots (*J. chem. Soc.*, 1944, 307).

Cultivated all over India. Doubtfully wild in the Himalayas up to 6,000 ft. Wild in China.

BENINCASA (*Cucurbitaceae*)

B. cerifera Savi; see **B. hispida** (Thunb.) Cogn.

B. hispida (Thunb.) Cogn. syn. *B. cerifera* Savi

Arab.–*Majdhab*; B. & P.–*Chalkumra*; H.–*Petha*; Bo.–*Kohala*; S.–*Brihatphala*; Tam.–*Pushani kai*; Tel.–*Budida-gummadi.*

Fruit—laxt., diur., tonic, aphrodis., antiper., specific for haemoptysis and other haemorrhages from internal organs.

Juice of fruit—in insanity, epilepsy and other nervous diseases.

Seeds—anthelm.

Oil from seeds—anthelm.

Vitamin B_1 (*Hlth Bull.*, No. 23, 1941, 32).

Cultivated more or less throughout the plains of India and on the hills up to 4,000 ft.

BERBERIS (*Berberidaceae*)

B. aristata DC.

S.–*Daru haridra*; B.–*Darhaldi*; Marathi–*Daruhald*; H.–*Dar-hald*, *Rasaut*; Kash.–*Rasvat*.

Root bark, wood and an extract made from root bark (*Rasaut*)—alter., deobstruent, used in skin diseases, menor., diar., jaundice and affections of the eyes.

Decoct. of root bark—in malarial fever.

Root bark rich in alk. content, berberine principal alk. (*Sci. & Cult.*, 1941, 613).

Himalayas from 6,000 to 10,000 ft. and Nilgiri Hills.

B. asiatica Roxb. ex DC.

H.–*Sumlu*; Kumaon–*Kilmora*; Garhwal–*Kingora*; Nepal–*Chitra*.

Roots—used for healing ulcers, urethral discharges, in leucor., ophthalmia, jaundice, fevers and source of *Rasaut*.

Plant contains berberine and oxyacanthine (*Indian J. med. Res.*, 1929, 769); total alk. content of roots is 4·0% and of stem 1·95% of which berberine is 2·09 and 1·29% respectively.

Dry outer Himalayas from 2,000 to 8,500 ft. and Assam.

B. insignis Hook. f.

Lepcha–*Timburjhin*.

Stem bark contains 1·52% and the root 2·50% of total alks. consisting almost of umbellatine (*J. Amer. pharm. Ass.*, 1941, 247; *Chem. Abstr.*, 1941, 8208); umbellatine more effective than berberine against *Leishmania tropica* (*Indian J. med. Res.*, 1944, 53; *Chem. Abstr.*, 1946, 136).

E. Himalayas from Nepal and Sikkim to Bhutan, between 8,000 and 10,000 ft. Very common around Darjeeling.

B. lycium Royle

H.–*Kashmal*; Bo.–*Darhald*.

Root—febge., application in eye disease, used in menor., chr. diar. and piles.

Extract (*Rasaut*)—used in ophthalmia.

Leaves—in jaundice.

Umbellatine the major alk. (*J. Indian chem. Soc.*, 1942, 233).

Outer N.W. Himalayas from Kashmir to Garhwal between 2,500 and 8,000 ft.

B. nepalensis Spreng.; see **Mahonia napaulensis** DC.

B. petiolaris Wall. ex G. Don

P.–*Chachar*, *Kashmal*; Urdu–*Ambar*.

Root bark—diur., for relief of heat, thirst and nausea, astrin., refrig., antibil., tonic in small doses, cath. in large doses.

W. Himalayas, from Kashmir to Nepal, up to 12,000 ft.

B. umbellata Wall.

One kg. stem bark yields 3·5 g. yellow needles of umbellatine (*J. Indian chem. Soc.*, 1940, 289; *Chem. Abstr.*, 1941, 1058).

Main Himalayan range and anterior dry ranges at 9,000-12,000 ft. from Kashmir eastwards, and from Kumaon to Bhutan.

B. vulgaris Linn.

P.–*Kashmal*.

Root bark—bitter tonic, astrin., diur.

Alks.—berberine, oxyacanthine, berbamine (*Arch. Pharm., Berl.*, 1891, 631; 1895, 161; 1926, 193; 1929, 117; *Ber. dtsch. chem. Ges.*, 1886, 3190; *J. Amer. pharm. Ass.*, 1926, 33); fluctuating ratio of several alkaloid groups exists in this drug; relatively poisonous causing death through paralysis with dyspnoeic symptoms (*Merck's Jber.*, 1936, 102; *Chem. Abstr.*, 1937, 3149; *Pharm. Zentralh.*, 1939, 113; *J. Pharmacol.*, 1941, 178; *Chem. Abstr.*, 1941, 2608); alk. berberine in 0·1 or 1·0% solution as sulphate or phosphate has a pronounced stimulant effect on isolated guinea pig or cat uterus; its action is similar but stronger than hydrastine (*Farmakol i-Toksikol.*, 1946, 12; *Chem. Abstr.*, 1947, 6987); root bark gave 6·1% and wood of root 0·4% berberine (*Repr. Lijecn. Vijesn.*, 1946, 16; *Chem. Abstr.*, 1949, 9246).

Europe.

B. wallichiana DC.

Assam–*Dieng-niang-mat-shynarang*.

Oxyacanthine and umbellatine in the root and bark (*J. Indian chem. Soc.*, 1942, 233).

Nepal, Sikkim and Bhutan at 8,000-10,000 ft. and Assam at 5,000 ft.

BERCHEMIA (*Rhamnaceae*)

B. lineata DC.

Kumaon & Garhwal–*Kameti*; Jaunsar–*Angari*.

Plant—considered a cure for fever in Lorali.

Baluchistan, trans-Indus, Himalayas, 4,500-9,000 ft., from the Indus eastwards to Bhutan.

BERGENIA (*Saxifragaceae*)

B. ligulata (Wall.) Engl. syn. *Saxifraga ligulata* Wall.
B.–*Patharchuri*; Bo.–*Pashanbheda*; H.–*Pakhanbed*; S.–*Pashanabheda*.

Root—tonic, used in fever, diar. and pulmonary affections, antiscor., bruised and applied to boils and ophthalmia.

Root contains gallic acid, tannic acid (14·2%), glucose (5·6%), mucilage, wax, etc. (Wehmer, I, 423).

Temperate Himalayas, from Kashmir to Bhutan between 7,000 and 10,000 ft., and Khasia Hills at 4,000 ft.

BERGIA (*Elatinaceae*)

B. odorata Edgew.
Rajputana–*Karbuja, Rohwan*.

Used for cleaning teeth and applied to broken bones.

Leaves—rubbed down in water used as poultice in sores.

W. Rajputana, Gujarat, Sind.

BETA (*Chenopodiaceae*)

B. vulgaris Linn.
S.–*Palanki*; H.–*Chukandar*; B.–*Bitpalang*; Arab.–*Salaq*.

Seeds—cooling, diaphor.

Leaves—applied to burns and bruises. Zinc 2 mg. per kg. (*Chem. Zbl.*, 1931, II, 506); vitamin B_1 and C (*Hlth Bull.*, No. 23, 1941, 31); beet greens contain more iron and are richer in vitamins, particularly vitamin A (Heinz Co., Nutrit. Chart, 1942, 21).

Cultivated in N. India in winter, and in Bombay and parts of S. India throughout the year.

B. vulgaris Linn. var. **benghalensis**
S.–*Palanki*; H.–*Chukandar*; B.–*Bitpalang*.

Seeds—cooling, diaphor.

Grown in N. India as a pot-herb.

BETULA (*Betulaceae*)

B. acuminata Wall.; see **B. alnoides** Buch.-Ham.

B. alnoides Buch.-Ham. syn. *B. acuminata* Wall.
H.–*Bhujpattra*; B.–*Hlosunle*; Assam–*Dingleen*.

Plant—in snake-bite.

Himalayas from the Ravi eastwards, 5,000-10,000 ft., Khasia Hills, 3,000-5,000 ft., and Manipur.

B. bhojpattra Wall.; see **B. utilis** D. Don

B. utilis D. Don syn. *B. bhojpattra* Wall.
S. & B.–*Bhurjapatra*; H.–*Bhujpattra*; Bo.–*Bhojpatra*; Tel.–*Bhujapatri*.

Infusion of bark—antisep., carmin., in hysteria.

Betulin, essen. oil (*Ber. dtsch. chem. Ges.*, 1876, 1442; 1879, 7; 1905, 1636; *Apothekerztg. Berl.*, 1904, 854; *Ber. Schimmel u. Co., Lpz.*, 1913, April, 25; 1918, 8).*

Temperate Himalayas from Kashmir, 7,000-12,000 ft., to Sikkim, 9,000-14,000 ft., and Bhutan.

BIDENS (*Compositae*)

B. pilosa Linn.
Gujarati—*Phutium*.

Infusion of the plant taken in Malaya for coughs.

In Brazil leaves used as styptic and as vulnerary, applied to foul ulcers and swollen glands.

In Gold Coast, the juice of the leaves is squeezed into the eyes or the ears to cure eye complaints or ear complaints.

Throughout India.

B. tripartita Linn.
Plant—used in chr. dysen. and eczema in China (Chinese Materia Medica).

Central and Western Himalayas from Nepal to Kashmir at 3,000-5,000 ft., W. Tibet.

BIOPHYTUM (*Geraniaceae*)

B. sensitivum (Linn.) DC.
H.–*Lajalu*; B.–*Jhalai*; S.–*Lajjaluka*; Gujarati & Marathi–*Jharera*.

Leaves—diur.

Powdered seeds—applied to wounds.

Decoct. of roots—in gonor. and lithiasis.

Ash—stomch.

Throughout the hotter parts of India.

BISCHOFIA (*Euphorbiaceae*)

B. javanica Blume
Bo.–*Bok*; B.–*Kainjal*; H.–*Bhillar, Paniala*; Tam.–*Milachadayan*; Tel.–*Nalupumushti*; Mal.–*Nira*.

Juice of leaves—considered cure for sores.

Leaves contain vitamin C (*Chem. Abstr.*, 1941, 1832); twig bark contains tannin (*Indian For. Leafl.*, No. 72, 1944, 57); seeds contain a drying oil (*Chem. Abstr.*, 1933, 201).

Sub-Himalayan forests from the Ravi eastwards through Oudh and Gorakhpur to Bihar, Bengal and Assam; in the Deccan Peninsula on E. Ghats, especially in Orissa and the N. Circars, and on the west coast from Konkan southwards to the Nilgiris.

BIXA (*Bixaceae*)

B. orellana Linn.
H. & B.–*Latkan*; S.–*Sinduri*; Bo.–*Shendri*; Tam. & Tel.–*Japhara*.

Fruit—astrin., purg.

Root bark—antiper., antipyr.

Seeds—cordial, astrin., febge., good remedy for gonor., antiper., antipyr.

Leaves—in jaundice and snake-bite.

Colouring matter, bixin (*Arch. Pharm., Berl.*, 1900, 58; *J. Indian Inst. Sci.*, 1924, 225; *J. Amer. pharm. Ass.*, 1922, 999; *Ber. dtsch. chem. Ges.*, 1932, 1873; *Chem. Zbl.*, 1933, I, 1136; *Pharm. Zentralh.*, 1935, 4); seeds contain small amount of fatty oil (*J. Amer. pharm. Ass.*, 1922, 999); a new alcohol bixol obtained from oil (*Chim. industr. appl., Milano*, 1937, 126; *Chem. Abstr.*, 1937, 8107).

Cultivated to a small extent in Mysore and is grown in Indian gardens as a hedge plant. Occurs as an escape in Travancore, Coromandal and Malabar coasts and in some districts of Bombay, Bengal and Assam.

BLASTANIA (*Cucurbitaceae*)

B. garcini Cog.

Tel.–*Gudimuralu.*

Fruits, seeds and roots used in medicine.

N. Circars, Deccan and Carnatic, extending westwards to the Ghats.

BLECHNUM (*Polypodiaceae*)

B. orientale Linn.

Used as poultice for boils in Malay.

Rhizome—used as anthelm. in China.

Himalayas up to 4,000 ft., and S. Indian mountains up to 6,000 ft.

BLEPHARIS (*Acanthaceae*)

B. edulis Pers.

H.–*Uttanjan*; Bo. & P.–*Uttangan*; B.–*Shushani*; S.–*Shikhi*; Marathi–*Karadu.*

Seeds—resolv., diur., aphrodis., expect.

Crystalline bitter principle (Dymock, Warden & Hooper, III, 41); seeds contain 2·1% allantoin and 1·2% bitter glucd. blepharin, catechol, tannins, saponin and glucose (*J. Indian chem. Soc.*, 1936, 109; 1940, 269; *Chem. Abstr.*, 1936, 4619; 1940, 6297).

Punjab, Sind, Baluchistan.

B. linariaefolia Pers. syn. *B. sindica* T. Anders.

Las Bela–*Asad.*

In Las Bela seeds used as cure for earache.

Punjab, Rajputana desert, Gujarat, Sind, Baluchistan.

B. sindica T. Anders.; see **B. linariaefolia** Pers.

BLUMEA (*Compositae*)

B. balsamifera DC.

H.–*Kakaronda*; Marathi–*Bhangaruda*; Gujarati–*Kalahad.*

Warm infusion—sudorific.

Decoct.—expect.

Plant—fish poison.

Camphor (*Philipp. J. Sci.*, 1909, 127A; *Ber. Schimmel u. Co., Lpz.*, 1910, April, 149; 1926, 8); leaves yield crystalline essen. oil, containing a camphor known as Ngai-camphor and a glucd.; injection of extract lowers blood pressure; used in the treatment of excitement, insomnia and hypertension (*Pr. med.*, 1940, 644; *Chem. Abstr.*, 1941, 2981).

Subtropical Himalayas, Nepal, Sikkim, Assam, Khasia Hills and Chittagong at 2,000-4,000 ft.

B. chinensis DC.

Leaves or leafy stalks used in Malaya as stomch., antisp. and diaphor.

E. Himalayas, Sikkim and Bhutan at 2,000-4,000 ft., Assam, Khasia Hills.

B. densiflora DC.

Burm.–*Pung-ma-theing.*

Leaves—occasionally used as sudorific.

Juice of leaves—insect-repellent (*J. Malar. Inst. India*, 1940, 495).

Essen. oil, camphor (*Ber. Schimmel u. Co., Lpz.*, 1920, 70; *Chem. & Drugg.*, 1920, 425; Wehmer, II, 1220).

Sub-tropical Himalayas, Sikkim, Assam, Mishmee and Naga Hills, Khasia Hills, between 2,000 and 4,000 ft.

B. eriantha DC.

Marathi–*Nimurdi.*

Juice of plant—carmin.

Warm infusion—sudorific.

Cold infusion—diur., emmen.

Essen. oil possessing camphor-like smell (*J. Indian chem. Soc.*, 1940, 45).

Bundelkhand, Konkan, Deccan, W. Ghats, probably west coast of Madras State.

B. lacera DC.

B.–*Kukursunga*; Bo.–*Nimrudi*; S.–*Kukuradru*; H.–*Kakranda*; Tam.–*Narakkarandai*; Tel.–*Karupogaku.*

Plant—bitter, antipyr.

Juice of leaves—anthelm., astrin., febge., stim., diur.

Root—in cholera.

Essen. oil, camphor (*Perfum. essent. Oil Rec.*, 1909, 252); herb gives 0·085% of essen. oil, containing blumea camphor (Wehmer, II, 1220).

Throughout the plains of India ascending to 2,000 ft.

B. myriocephala DC.

Leaves used as sudorific in Indo-China, and given in broncht. and in aphthae.

Sikkim Himalayas at 2,000 ft., Assam, Chittagong, Sylhet.

BOCAGEA (*Annonaceae*)

B. dalzellii Hk. f. & Thoms.; see **Sageraea laurifolia** (Grah.) Blatter

BOEHMERIA (*Urticaceae*)

B. nivea Gaud.
B.–*Kankhura*; Assam–*Rhea*.
Roots—aper.
Leaves—resolv.
Cultivated in the warmer parts of India, especially Assam and Bengal.

BOERHAAVIA (*Nyctaginaceae*)

B. diffusa Linn. syn. *B. repens* Linn.
H.–*Sant*; B. & Tel.–*Punarnava*; S.–*Punarnava*, *Rakta punarnava*; Bo.–*Ghetulli*; Tam.–*Mukaratte-kirei*.

Root—diur., laxt., expect., in asthma, stomch., in oedema, anaemia, jaundice, ascites, anasarca, scanty urine and internal inflam., antid. to snake venom.

Active constituent alk. punarnavine, total alk. content of roots 0·04%; intravenous injections of the alk. in cats produce a distinct and persistent rise of blood pressure and marked diuresis (*Indian med. Gaz.*, 1923, 204); contains 0·01% alk. punarnavine (*Proc. nat. Acad. Sci. India*, 1934-35, 240; *Chem. Abstr.*, 1936, 3585; 1941, 6392; 1947, 7671; *Indian J. med. Res.*, 1940, 469; *Quart. J. Pharm.*, 1947, 38).

A weed throughout India.

B. repens Linn.; see **B. diffusa** Linn.

BOLETUS (*Polyporaceae*)

B. crocatus Batsch
Ind. Baz.–*Phausamba*.
Ground to a paste with water and applied to gums in excessive salivation, used internally in diar. and dysen.

BOMBAX (*Bombacaceae*)

B. ceiba Linn.; see **Salmalia malabarica** Schott & Endl.

B. malabaricum DC.; see **Salmalia malabarica** Schott & Endl.

BONGARDIA (*Berberidaceae*)

B. rauwolfii C. A. Mey.
Leaves—used as a cure for sore eyes in horses.
Baluchistan.

BONNAYA (*Scrophulariaceae*)

B. reptans Spreng.
Lakhimpur–*Kausidarya*.
Herb—applied externally for worms in the skin.
From Nepal and Sikkim, up to 7,000 ft., Assam, Khasia Hills, Cachar and Tenasserim, Madras, S. Konkan.

BORASSUS (*Palmae*)

B. flabellifer Linn. syn. *B. flabelliformis* Roxb.
S. & B.–*Tal*; H.–*Tar*; Marathi & Gujarati–*Tad*; Tam.–*Panai*, *Talai*; Tel.–*Tadi-chettu*; Mal.–*Pana*.
Root—cooling, restor.
Juice of plant—diur., stim., antiphlegm., useful in inflammatory affections and dropsy.
Pulp—demulc., nutri.

Nutritive value of the sap called toddy depends on the small amount of sugar and yeast in it and the latter is a good source of vitamin B complex (*Indian med. Gaz.*, 1942, 224).

More or less all over India in the dry parts, common along the coastal areas of the peninsula, Bihar and Bengal.

B. flabelliformis Roxb.; see **B. flabellifer** Linn.

BORRERIA (*Rubiaceae*)

B. hispida (Linn.) K. Schum. syn. *Spermacoce hispida* Linn.
Bo.–*Ghantachibaji*; H. & S.–*Madanaghanti*; Tam.–*Nattaichuri*; Tel.–*Nadana*.
Decoct. of root—alter.
Seeds—stim.
The vapour is inhaled to kill tooth worms.
Himalayas from the neighbourhood of Simla eastwards to Assam and southwards to Ceylon.

BOSWELLIA (*Burseraceae*)

B. serrata Roxb.
S.–*Shallaki*; H. & B.–*Luban*, *Salai*; Tam. & Tel.–*Parangisambrani*.

Gum—diaphor., diur., astrin., emmen., in rheumatism, nervous and skin diseases.

Essen. oil (*Bull. imp. Inst., Lond.*, 1919, 159; *J. Soc. chem. Ind., Lond.*, 1923, 486; *J. Indian Inst. Sci.*, 1925, 221; *Indian For. Rec.*, 1918, 303; 1919, 6, VI); gum resin—essen. oil 9·0% (*Indian Soap J.*, 1942, 252; *Chem. Abstr.*, 1948, 3534).

Note—Two varieties are usually distinguished: var. *serrata* with serrate and pubescent leaves, and var. *glabra* with entire, glabrous leaves.

Madhya Pradesh, Deccan, Bihar, Orissa, Rajputana, Madhya Bharat, Eastern States and N. Gujarat. Not found in Assam and Bengal.

BOTRYCHIUM (*Ophioglossaceae*)

B. lunaria Sw.
English–*Moonwort*.

Plant—used in dysen., ruptures, for healing cuts and wounds, a good vulnerary (*J. Bombay nat. Hist. Soc.*, 1935, 352).

Common from Kashmir to Sikkim ascending up to 13,000 ft., and extending to the Karakoram Range in W. Tibet.

B. ternatum Sw.

Plant—used as vulnerary.

Root—in dysen. (*J. Bombay nat. Hist. Soc.*, 1935, 352).

Himalayas, from the Punjab to Nepal and Sikkim, and reported from Mount Abu.

B. virginianum Sw.

Fleshy root—used by American Indians in application to cuts and bruises (*J. Bombay nat. Hist. Soc.*, 1935, 352).

Himalayas from the Punjab to Sikkim.

BOUCEROSIA (*Asclepiadaceae*)

B. aucheriana Decne.
P.–*Charungli, Pamanke*.

Juicy stems—bitter tonic, febge., stomch., carmin., useful in rheumatism.

Dry hills of western Punjab, Waziristan, Baluchistan.

BRAGANTIA (*Aristolochiaceae*)

B. tomentosa Blume = *Apama tomentosa Engl.*

Plant—emmen., fish poison.

Sylhet, Assam, Manipur.

B. wallichii R. Br. = **Apama siliquosa** Linn.

S. & Marathi–*Chakrani*; Tel.–*Tellayeshwari*; Mal.–*Alpam*.

Roots—in cholera, diar., dysen.

Plant—mixed with oil and made into an ointment said to be beneficial for carbuncles and inveterate ulcers.

Roots contain isoaristolochic acid (*J. Indian chem. Soc.*, 1938, 646; *Chem. Abstr.*, 1939, 5591); roots answer qualitative tests for alkaloids, but no pure base isolated, contain isoaristolochic acid (*Indian J. Pharm.*, 1944, 96).

Deccan Peninsula, common in the evergreen forests around Gersoppa falls and in S. Konkan.

BRASENIA (*Nymphaeaceae*)

B. schreberi J. F. Gmel.

Leaves—astrin., used in phthisis and dysen. in North America.

Bhutan, 6,000 ft., Khasia Hills, 4,500 ft.

BRASSICA (*Cruciferae*)

B. campestris Linn.

Tuberous roots and seeds—considered antiscor.

Seeds yield oil of colza which is official in Sweden as oleum rape (*J. Amer. chem. Soc.*, 1903, 690; *J. Soc. chem. Ind., Lond.*, 1898, 992; *Chem. News*, 1895, 296).

Naturalized in India.

B. campestris Linn. var. **rapa** (Linn.) Hartm.

B. & H.–*Kali sarson*; S.–*Kala-sarshapa*; Mal.–*Karupakaluka*; Tam.–*Karuppukkadugu*; Tel.–*Nallaavalu*.

Seeds—mixed with hot water form an efficient counter-irritant poultice.

Oil—combined with camphor forms an efficacious embrocation in muscular rheumatism, stiff neck, etc.; it is used in dengue fever with benefit, and is rubbed on the chest in broncht.

Roots and leaves considered stomch. in Indo-China.

Oil contains glycerides of erucic acid.

Cultivated throughout India.

B. cernua (Thunb.) Forbes & Hemsley
H.–*Rai*.

Decoct. of seeds—in lumbago, cough and indign.

Leaves—used in Indo-China as antidysen., diaphor.

Fresh leaves contain oxalic acid 0·079%, Ca 0·0068%; dry leaves contain oxalic acid 2·58% and Ca 0·222% (*Chin. J. Physiol.*, 1938, 209; *Chem. Abstr.*, 1938, 9318).

Cultivated in Western, Central and Eastern Himalayas.

B. integrifolia (West) O. E. Schulz

B.–*Raisarisha*; Bo.–*Rai, Sarson*; H.–*Badshahirai*; S.–*Rajika*; Tam.–*Kadugu*.

Seeds—warming, sudorific, used in spasmodic, neuralgic and rheum. affections.

Oil—used as an embrocation, applied to skin in eruptions and ulcers.

Oil contains glycerides of erucic acid.

Much cultivated in India in the Punjab, Assam and North Bengal.

B. juncea (Linn.) Czern. & Coss.
P.–*Asal rai*.

Essen. oil (Wehmer, I, 438).

Abundantly cultivated in Upper India; also in the low-lying hills of the Athur Taluk of Salem district in Madras State.

B. napus Linn.
H.–*Toriva, Kali-sarson*.

Root—emol., diur.

Juice of root—in chr. coughs and bronchial catarrh.

Essen. oil.

Cultivated in Northern India, from Punjab to Bengal, and in parts of Chota Nagpur.

B. napus Linn. var. **chinensis** (Linn.) O. E. Schulz

Plant—antiscor., arthritic, resolv.

Seeds—stim., stomch., laxt.

Cultivated in India.

B. nigra (Linn.) Koch

B.–*Raisarisha*; H.–*Aslrai, Taramira*; Bo.–*Rai*; S.–*Madhurika*; Tam.–*Kadugu*; Tel.–*Avalu*.

Seeds—stim., rubft., vesic., used in snake-bite.

Glucd. sinigrin, essen. oil (*Arch. Pharm., Berl.*, 1863, 132, 214; 1897, 44; *Pharm. Weekbl.*, 1915, No. 39; *Ber. Schimmel u. Co., Lpz.*, 1923, 72; 1925, 72); seed—senfol (ether) 0·75-1·02% (*Apothekerztg, Berl.*, 1933, 612; *Chem. Zbl.*, 1934, I, 255); myrosin (*J. biol. Chem.*, 1932, 443; *Chem. Zbl.*, 1932, II, 2321).

Sparingly cultivated in various parts of India.

B. oleracea Linn.

H.–*Karam-kalla*; S.–*Dalamalini*; Dec.–*Karam*; B.–*Kopi*; Tam. & Tel.–*Gos*.

Leaves—bitter, stomch., cardiotonic, application in gout and rheumatism.

Seeds—diur., laxt., stomch., anthelm.

In its varieties cultivated all over India.

BRAYERA (*Rosaceae*)

B. anthelmintica Kunth; see **Hagenia abyssynica** Gmel.

BREYNIA (*Euphorbiaceae*)

B. patens Benth.

H.–*Kalamahomad, Kambhi*; S.–*Bahupraja*; Tel.–*Devadari*; Gujarati–*Kamboi*; Mal.–*Peruniruri*.

Plant—astrin.

Juice of stem—used in conjunctivitis.

Tropical Himalayas, Nepal, Assam, Chittagong, W. Peninsula.

B. rhamnoides Muell.-Arg.

H.–*Surasaruni*; M.–*Manipullandi*; S.–*Aruni*; Tam. & Mal.–*Kattuniruri*; Tel.–*Ettapurugudu*.

Bark—astrin.

Dried leaves—smoked like tobacco in swelled uvula and tonsils.

Throughout tropical India.

BRIDELIA (*Euphorbiaceae*)

B. montana Willd.

H.–*Gondni, Kargnalia*; Assam–*Kaisho*; Bo.–*Asano*; Tam.–*Vengaimaram*; Tel.–*Pantegi*.

Plant—anthelm.

Root and bark—astrin.

Tannin.

Sub-Himalayan tracts from the Jhelum eastwards, Khasia Hills, Madhya Pradesh, Bihar, Orissa.

B. retusa Spreng.

H.–*Khaja*; B.–*Geio, Kantakoi*; Bo.–*Phatarphod*; S.–*Mahavira*; Tam.–*Mullavengai*; Tel.–*Bontha-yepi*; Mal.–*Mukkayini*; Marathi–*Asana*.

Roots and bark—astrin.

Bark—with gingili oil used as liniment in rheumatism.

Bark contains 16-40% tannin (*Indian For. Leafl.*, No. 72, 1944, 5).

Throughout India.

BROMUS (*Gramineae*)

B. catharticus Vahl syn. *B. unioloides* H.B. & K.

Plant—purg. (Wealth of India, I, 230).

A native of S. America, introduced into India, has run wild near Darjeeling and the Nilgiris.

B. mollis Linn.

Grains—fatal to poultry, cause giddiness in man and cattle (*J. Bombay nat. Hist. Soc.*, 1936, 551).

N.W. India.

B. unioloides H., B. & K.; see **B. catharticus** Vahl

BRUCEA (*Simarubaceae*)

B. amarissima (Lour.) Merr. syn. *B. sumatrana* Roxb.

Sing.–*Kaputugeddi*.

Seeds—toxic, used in Indo-China as anthelm., antidysen. and antipyr.

Leaves—used as remedy for skin diseases by the Malays and Javanese.

Decoct. of roots—employed in fevers in Java.

Fruits—used in tropical dysen.

Bark yields small amount of volatile oil; seeds contain 20% fatty oil, two new bitter principles and small quantity of ester (Wehmer, II, 642); bitter principles have no action on free living protozoa (Chopra, 356).

Assam, Andamans.

B. sumatrana Roxb.; see **B. amarissima** (Lour.) Merr.

BRUNELLA (*Labiatae*)

B. vulgaris Linn.; see **Prunella vulgaris** Linn.

BRYONIA (*Cucurbitaceae*)

B. callosa Rottl.; see **Cucumis trigonus** Roxb.

B. epigaea Rottl.; see **Corallocarpus epigaeus** (Rottl. & Willd.) C. B. Clarke

B. laciniosa Linn.; see **Bryonopsis laciniosa** (Linn.) Naud.

B. pilosa Roxb.; see **Kedrostis rostrata** Cogn.

B. rostrata Rottl.; see **Kedrostis rostrata** Cogn.

B. scabrella Linn.; see **Melothria maderaspatana** (Linn.) Cogn.

B. umbellata Klein; see **Melothria heterophylla** Cogn.

BRYONOPSIS (*Cucurbitaceae*)

B. laciniosa (Linn.) Naud. syn. *Bryonia laciniosa* Linn.

S.–*Bahupatra*; B.–*Mala*; Bo.–*Kawala*; H.–*Gargumaru*; Mal.–*Neohmaka*; Tel.–*Lingadonda*.

Plant—bitter, aper., tonic, used in bilious attack, in fevers with flatulence.

Leaves—applied to inflam.

Bitter principle bryonin (Dymock, Warden & Hooper, II, 93; *Biochem. d. Pflazen*., 2 Aufl., 1921, III, 293).*

Throughout India.

BRYOPHYLLUM (*Crassulaceae*)

B. calycinum Salisb.; see **Kalanchoe pinnata** Pers.

B. pinnatum Kurz; see **Kalanchoe pinnata** Pers.

BUCHANANIA (*Anacardiaceae*)

B. lanzan Spreng. syn. *B. latifolia* Roxb.

H. & B.–*Chironji*, *Piyal*; Marathi & Gujarati–*Charoli*; Tam.–*Mudaima*; Tel.–*Sara*; S.–*Piyalaka*.

Oil from kernels—used as subst. for almond oil in native medicinal preparations.

Kernel—as ointment used in skin diseases.

Gum—in diar.

Bark contains 13·4% tannin (*Bull. imp. Inst., Lond*., 1925, 161; *J. Indian chem. Soc*., 1941, 557).

Throughout India in dry deciduous forests; in N.W. India from the Sutlej to Nepal ascending to 3,000 ft.

B. latifolia Roxb.; see **B. lanzan** Spreng.

BUDDLEJA (BUDDLEIA) (*Loganiaceae*)

B. asiatica Lour.

Kumaon–*Bana*; Simla–*Newarpati*.

Used in the Philippines for skin complaints and as abortif. (Burkill, I, 379).

Sub-Himalayan tracts from the Indus eastwards, ascending to 4,000 ft.; Bengal, S. India.

BUPLEURUM (*Umbelliferae*)

B. falcatum Linn.

P.–*Kalizewar*, *Sipil*.

In Indo-China the roots in combination with other drugs prescribed in liver troubles and as diaphor.

Saponin (*J. pharm. Soc., China*, 1943, 17; *Chem. Abstr*., 1945, 3118).

Himalayas from Kashmir to Bhutan, 3,000-12,000 ft.

B. jucundum Kurz

Root—diaphor., antipyr., in liver troubles.

Kashmir, Punjab.

BUTEA (*Leguminosae*)

B. frondosa Koen. ex Roxb.; see **B. monosperma** (Lam.) Kuntze

B. monosperma (Lam.) Kuntze syn. *B. frondosa* Koen. ex Roxb.

S.–*Palasha*; Marathi & B.–*Palas*; H.–*Dhak*, *Palas*; Tam.–*Parasa*; Tel.–*Moduga*; Mal.–*Palasinsamatha*.

Seeds—anthelm.

Gum—astrin., in diar. and dysen.

Leaves—astrin., tonic.

Flowers—astrin., diur., depurative, aphrodis.

Bark and seed—in snake-bite.

Gum—Bengal kino; leaves and flowers—glucd. (*Proc. chem. Soc., Lond*., 1903, 134; 1904, 169; *J. chem. Soc*., 1904, 1459); seeds contain 18% of a yellow tasteless oil (*J. Indian chem. Soc*., 1929, 639); fresh seeds contain proteolytic and lipolytic enzymes (*J. Indian chem. Soc*., 1938, 101, 107; *Indian med. Gaz*., 1947, 66); flowers—1·5% glucd. butrin, 0·3% butein, 0·04% butin, 0·02% unidentified glucd. and a heteroside (*J. Indian chem. Soc*., 1935, 262; *Proc. Indian Acad. Sci*., 1940, 477; 1941, 395; *Chem. Abstr*., 1942, 751; 1942, 1327).*

Common throughout the greater part of India up to 4,000 ft., except in very arid parts.

B. superba Roxb.

S.–*Lata palas*; H. & B.–*Palas lata*; Tam.–*Kodimurukkan*.

Leaf juice—given with curds and yellow zedoary in heat-eruptions of children.

Gum-kino; roots—two glucds. (*Rev. filip. Med*., 1938, 12; *Chem. Abstr*., 1938, 3088); flowers yield same crystalline components as from *B. monosperma*, predominant product being butrin (*J. sci. industr. Res*., 1949, 178B; *Chem. Abstr*., 1950, 3097).

Forests of Oudh eastwards through Bihar and Bengal to Assam, and southwards to Burma; common in Central and South India.

BUTIA (*Palmae*)

B. yatay Becc. syn. *Cocos yatay* Mart.

Brazil–*Yatai*.

Fleshy part of fruit—used as anthelm. in Brazil.

Cultivated in Indian gardens.

BUXUS (*Buxaceae*)

B. wallichiana Baill. syn. *B. sempervirens* Linn. (in part)

Kash.–*Chikri*; P.–*Papri, Shamshad.*

Wood—diaphor.

Leaves—bitter, purg., diaphor., useful in rheumatism and syphilis.

Bark—febge.

Alks. buxine, para-buxine, buxinidine, buxinamine (*Pharm. J.*, 1882, 23; *Ber. dtsch. chem. Ges.*, 1884, 2655; *Arch. Pharm., Berl.*, 1898, 530; *Biochem. J.*, 1931, 1204); four alks. (*Helv. chim. acta*, 1949, 2209; *Chem. Abstr.*, 1950, 4009).*

Western and central Himalayas from Kumaon to Simla and Bhutan at 4,000-9,000 ft., and on the Salt Range in W. Punjab.

BYTTNERIA (*Sterculiaceae*)

B. herbacea Roxb.

Porebunder–*Adbaubol*; Santh.–*Dekusindur*.

Rootstock—ground and rubbed on swellings of legs, given in female disease known in Santhali as 'pordhol'.

Orissa, Madras State, N. Circars, Deccan, Carnatic, Bombay and Konkan.

CACCINIA (*Boraginaceae*)

C. glauca Savi

Ind. Baz.–*Gaozaban*.

Plant—alter., tonic, diur., demulc., used in syphilis and rheumatism.

Baluchistan.

CADABA (*Capparidaceae*)

C. farinosa Forsk.

Bo.–*Habab*; H.–*Kodhab*; Tam.–*Kattagatti, Vili*; Tel.–*Adamorinika*; Mal.–*Kattakatti*.

Leaves and roots—purg., anthelm., antisyp., deobstruent, emmen., aper., prescribed in decoct. in uterine obstructions.

Leaves—used as poultice for sores.

Alk. in the leaves (Dymock, Warden & Hooper, I, 138; Dragendorff-Heilpflanzen, 262; Wehmer, I, 391).

Baluchistan, Sind, Punjab, Rajputana desert, Madhya Bharat, Gujarat, Konkan, dry districts of N. Circars, Deccan and Carnatic from Vizagapatam southwards to Madura district.

C. indica Lam.; see **C. farinosa** Forsk.

C. trifoliata (Roxb.) W. & A.

S.–*Balya*; Tam.–*Manudukkurundu, Viluti*; Tel.–*Chekonadi*.

Roots and leaves—purg., emmen., anthelm., antiphl., in amenor., dysmen., for rheum. joints and indign. of children.

Leaves—employed in the preparation of medicated oils (*J. Bombay nat. Hist. Soc.*, 1939, 123).

Carnatic.

CAESALPINIA (*Leguminosae*)

C. bonduc (Linn.) Roxb.; see **C. jayabo** Maza

C. bonducella Fleming; see **C. crista** Linn.

C. coriaria (Jacq.) Willd.

Arab. & Pers.–*Sumaque-amriquah*; Bo.–*Libi-dibi*; Tam.–*Tividivi*; Tel.–*Divi-divi*.

Powder of pods—astrin., antiper., tonic.

Decoct. of pods—used for the treatment of bleeding piles.

Bark—antiper., used in chr. fevers.

Pod—rich in tannin.

A native of S. America and West Indies. Introduced in India and almost acclimatized in S. India, and cultivated in Dharwar, Belgaum and Kanara. Sparingly cultivated in North-west India and in Bengal.

C. crista Linn. syn. *C. bonducella* Fleming

S.–*Kuberakshi, Putikaranja*; H.–*Karanju, Kat-karanja*; B.–*Nata, Nata-karanja*; Bo.–*Sagurghota*; Marathi–*Gajaga*; Tam.–*Kazhichikay*; Tel.–*Gachacha-kaya*; Mal.–*Kazanchik-kuru*.

Seeds—antiper., antipyr., tonic, febge., in asthma, in snake-bite.

Tender leaves—in disorders of the liver.

Leaves and seeds—used in external applications for dispersing inflammatory swellings.

Leaves and bark—emmen., febge., anthelm.

Oil from seeds—emol., used as embrocation to remove freckles from the face and for stopping discharges from the ear.

A bitter substance, bonducin (*J. Pharm. Chim., Paris*, 1886, 115; *Ber. dtsch. pharm. Ges.*, 1902, 143; *Indian J. med. Res.*, 1929, 377); seeds contain bitter substance phytosterinin, bonducin, saponin, fatty oil 20-24%, starch, sucrose, two phytosterols (*J. Indian chem. Soc.*, 1930, 207); bitter amorphous glycoside bonducin isolated from the oil (*Proc. nat. Acad. Sci. India*, 1934, 141); bitter principle ineffective against bird malaria (*Indian med. Gaz.*, 1943, 285).*

Throughout the hotter parts of India up to 2,500 ft. in the hills; common in Bengal and S. India.

C. digyna Rottl.

H.–*Vakeri-mul*; B.–*Umul-kuchi*; Bo.–*Vakeri-mula*; Tel.–*Nunc-gacca*.

Root—astrin., given internally in phthisis, scrofulous affections and diabetes.

Tannin in pod-cases but not in seeds (*Bull. imp. Inst., Lond.*, 1912, 219; *J. Indian chem. Soc.*, 1944, 32); bitter substance bonducin, saponin (*J. Indian chem. Soc.*, 1930, 207).

Bengal, Assam, Andamans.

C. jayabo Maza

Arab.–*Bunduk*; Tam.–*Kalarsikkodi*; Tel.–*Gacha*; Mal.–*Kalanji*.

In Indo-China the bitter leaves used as emmen. and the root prescribed in dysen.

E. and W. Peninsula.

C. nuga (Linn.) Ait.

B.–*Shingrilota*; Mal.–*Kakamullu*; Tel.–*Mulutiga*.

Roots—diur., tonic, useful in gravel and stone in bladder.

Pulped fruit and stems yield a fish poison (*Indian J. agric. Sci.*, 1940, 23).

Konkan, west coast, Orissa, Sundarbans, East Bengal near Chittagong and Sylhet. A littoral species.

C. pulcherrima Swartz; see **Poinciana pulcherrima** Linn.

C. sappan Linn.

S.–*Patanga*, *Pattranjaka*; H. & B.–*Bakam*, *Patang*; Marathi–*Patang*; Tam.–*Patungam*; Tel.–*Bakamu*; Mal.–*Sappannam*.

Decoct. of wood—considered emmen., useful in diar. and dysen., given internally in certain skin diseases.

Brasilin, essen. oil (*Ber. Schimmel u. Co., Lpz.*, 1929, 7); leaves contain 0·16-0·25% essen. oil containing *d*-α-phellandrene as the chief constituent; oscimene also present (*Chem. Abstr.*, 1928, 2029; Wehmer, I, 509); pod-cases and bark contain tannin (Burkill, I, 390).

S. India, Bengal. Usually cultivated as a hedge plant.

C. sepiaria Roxb.

H.–*Relu*, *Arlu*; P.–*Relan*; Bo.–*Chillur*; Tam.–*Kadiyindu*; Tel.–*Gaddakorinda*; Mal.–*Inna*.

Leaves—emmen., laxt., applied to burns.

Root—purg.

Throughout India and well known as a hedge plant.

CAJANUS (*Leguminosae*)

C. cajan (Linn.) Millsp. syn. *C. indicus* Spreng.

S.–*Adhaki*; H., B. & P.–*Arhar*; Bo.–*Tuver*; Tam.–*Thovary*; Tel.–*Kandulu*; Mal.–*Thuvara*.

Seeds and leaves—made into a paste, which is warmed, and applied over the mammae to check secretion of milk.

Seeds—in snake-bite.

Seeds contain two globulins, cajanin and concajanin (*J. Indian Inst. Sci.*, 1929, 193); analysis of pulse without husk (*Hlth Bull.*, No. 23, 1941, 28); analysis of husk (*Misc. Bull., imp. Coun. agric. Res. India*, No. 25, 1946, 20, 27).

Vastly cultivated throughout India as a pulse crop.

C. indicus Spreng.; see **C. cajan** (Linn.) Millsp.

CALAMINTHA (*Labiatae*)

C. clinopodium Benth.

Arab.–*Asaba-el-fatiyat*.

Plant—astrin., carmin. and heart tonic.

Rhizome contains stachyose (Wehmer, II, 1030).

Western temperate Himalayas from Kashmir to Kumaon, 4,000-12,000 ft.

C. hortensis Linn.; see **Satureja hortensis** Linn.

CALAMUS (*Palmae*)

C. draco Willd.; see **Daemonorops draco** Blume

C. rheedi Griff.

Mal.–*Kuttuchural*.

Powdered seed—applied to ulcers.

Malabar.

C. rotang Linn.

S.–*Vetasa*, *Vetra*; H., B. & Bo.–*Chachi bet*; Tam.–*Perambu*; Tel.–*Pemu*.

Root—given in chr. fevers, antid. to snake venom.

Leaves—in diseases of the blood, in biliousness.

Wood—vermifuge.

Madhya Pradesh, Deccan, Carnatic.

C. travancoricus Bedd. ex Hook. f.

Kan.—*Nayibetta*; Mal.–*Cheruchural*, *Kattuchural*.

Tender leaves—used in biliousness, worms, dyspep. and ear diseases, considered anthelm.

Deccan Peninsula from Malabar to Travancore.

CALENDULA (*Compositae*)

C. arvensis Linn.

In Spain leaves considered sudorific.

Flowers reputed as stim., antisp. and emmen.

Kashmir.

C. officinalis Linn.

P.–*Zergul.*

Plant—vulnerary, astrin., styptic.

Flowers and plant—used to treat wounds and injuries.

Flowers—stim., antisp., emmen.

Leaves—resolv., diaphor.

Salicylic acid, bitter substance calendulin, essen. oil (*J. Pharm. Chim., Paris*, 1904 (6), 121 ; *Hoppe-Seyl. Z.*, 1927, 229 ; *Ber. dtsch. chem. Ges.*, 1930, 3203) ; fresh fully opened blossoms—0·004% essen. oil containing azulenogenic sesquiterpenes or sesquiterpene alcohols (*Parfums de Fr.*, 1936, 272 ; *Chem. Abstr.*, 1937, 1956) ; flowers contain amorphous bitter principle, calendulin, a tasteless substance analogous to bassorin, traces of essen. oil, oleanolic acid, a gum, a sterol, cholesterol, esters of lauric, myristic, palmitic, stearic and pentadecylic acids, faradiol and arnidiol (Wehmer, II, 1256 ; *Chem. Abstr.*, 1947, 1733) ; plant contains salicylic acid (0·34 mg./kg. in fresh material) and inulin in roots (Wehmer, II, 1256).

Wild in Punjab, Sind and Peshawar. Cultivated in many parts of India as an ornamental garden plant.

CALLA (*Araceae*)

C. aromatica Roxb. ; see **Homalomena aromatica** Schott

CALLICARPA (*Verbenaceae*)

C. arborea Roxb.

Assam–*Khoja* ; B.–*Kojo* ; Kumaon–*Ghiwala.*

Bark—arom., bitter, tonic, carmin.

Decoct. of bark—applied to cutaneous diseases.

Upper Gangetic Plain, lower hills of Kumaon to Sikkim, Bengal, Rajmahal and Chota Nagpur Hills, Assam, Khasia Hills and Northern Circars of the Deccan Peninsula.

C. cana Linn. = **C. candicans** Hochr.

Chittagong–*Arusha.*

Leaves, roots and bark—used in skin diseases.

Leaves—remedy for abdominal troubles, for poulticing wounds and boils and as fish poison (Burkill, I, 403 ; *Philipp. J. Sci.*, 1947, 172).

Chittagong.

C. lanata Linn. = **C. tomentosa** Murr.

H.–*Bastra* ; B.–*Massandari* ; Bo.–*Aisar* ; Tam.–*Vettilaipattai* ; Mal.–*Nallapompil.*

Decoct. of bark and root—useful in fever, hepatic obstruction and skin diseases.

Root—in cutaneous affections.

Leaves—boiled in milk used as a wash for aphthae of the mouth.

Konkan, S. Mahrata Country, N. Kanara, W. Ghats of Bombay and Madras States.

C. longifolia Lam.

Khasia Hills–*Dieng-soh-kaitlang.*

Root, leaves and bark—useful in the treatment of sprue.

Decoct. of leaves—prescribed for colic and fevers.

Decoct. of roots—for diar. and syphilis.

Leaves—fish poison.

E. Bengal, Assam.

C. macrophylla Vahl

B.–*Mathara* ; P.–*Sumali* ; H. & Kumaon–*Daya* ; Mal.–*Chimpompil.*

Leaves—heated and applied to rheum. joints.

Oil from root—arom., stomch.

Upper Gangetic Plain, Bengal Plain, W. Himalayas from Kashmir eastwards up to 6,000 ft., Assam.

CALLIGONUM (*Polygonaceae*)

C. polygonoides Linn.

P. & Sind–*Phog, Phogalli, Phok, Tirni.*

Roots—bruised and boiled, in combination with catechu, used as gargle for sore gums.

Flowers are rich in protein (*Kew Bull.*, 1889, 217).

Punjab, Rajputana, Sind, Baluchistan.

CALONYCTION (*Convolvulaceae*)

C. aculeatum House syn. *Ipomoea bona-nox* Linn.

Bo.–*Gulchandni* ; Mal.–*Mandavalli* ; Tel.–*Panditivankayya* ; B. & H.–*Dudhiakalmi* ; S.–*Chandra-kanti* ; Tam.–*Naganamukkori.*

Plant parts—in snake-bite. (*Ber. dtsch. pharm. Ges.*, 1910, 481).

Resin-like substance separated from the plant (*Science*, 1943, 471).

An ornamental herb cultivated more or less throughout India.

C. muricatum (Linn.) G. Don syn. *Ipomoea muricata* Jacq.

B. & H.–*Michai* ; Bo.–*Gariya* ; M.–*Mukkattikay* ; Tam.–*Kattutali.*

Seeds—bitter, purg., used as subst. for *Ipomoea hederacea*, and in powder form as febge.

Juice of the plant—used to destroy bugs.

Resin similar to *Ipomoea hederacea* (*Pharm. J.*, 1924, 155); seeds yield 8·74% fixed oil (*J. Indian chem. Soc.*, 1947, 87).

Himalayas from Kangra to Sikkim up to 5,000 ft., Upper Gangetic Plain, Bengal, Bihar, Orissa, Bombay, Deccan hills.

CALOPHYLLUM (*Guttiferae*)

C. apetalum Willd. syn. *C. wightianum* T. Anders.

Bo.–*Sarapuna*; Marathi–*Bobbi*; Tam.–*Sirubinnai*; Mal.–*Cherupinnai*.

Resin—antiphl., anodyne.

Oil of seeds—used in leprosy and cutaneous affections.

Dried seed kernels yield 45-50% of a oil with bitter taste (*J. Indian Inst. Sci.*, 1922, 133).*

W. Ghats of the Bombay State, and from Mysore to Travancore up to 1,000 ft., banks of rivers and backwaters on west coast from N. Kanara southwards.

C. elatum Bedd. syn. *C. tomentosum* T. Anders.

Bo.–*Pun*; Mal.–*Kattupunna*; Marathi–*Nagani*; Tam.–*Kattupinnai*.

Gum—feebly astrin.

Seed kernels yield 70% oil (*J. Indian Inst. Sci.*, 1922, 133).

W. Ghats from N. Kanara to Travancore, ascending to 5,000 ft.

C. inophyllum Linn.

S.–*Punnaga*; H. & B.–*Sultana champa*; Bo.–*Undi*; Tam.–*Punnagam*; Tel.–*Pouna*; Mal.–*Punna*.

Oil of seeds—specific for skin diseases, and for application in rheumatism.

Bark—astrin., in internal haemor.

Gum—emetic, purg.

Juice—purg.

Leaves—fish poison.

Kernels yield 50-73% of oil (Wealth of India, II, 19); bark contains 11·9% tannin (Brown, III, 94); arom. resin possessing emetic and purg. properties is obtained as exudation from the bark (Dymock, Warden & Hooper, I, 174); leaves contain saponin and hydrocyanic acid (Burkill, I, 411).

Coastal regions of S. India, Andaman Islands and grown throughout India as an ornamental tree.

C. tomentosum T. Anders.; see **C. elatum** Bedd.

C. wightianum T. Anders.; see **C. apetalum** Willd.

CALOTROPIS (*Asclepiadaceae*)

C. gigantea (Linn.) R. Br. ex Ait.

S.–*Arka*; H.–*Ak*; B. & Bo.–*Akanda*; Tam.–*Arkham*; Tel.–*Jilledu*; Mal.–*Erikku*.

Root bark—in dysen., subst. for Ipecacuanha, diaphor., expect., emetic, in form of a paste applied to elephantiasis.

Tincture of leaves—used in intermittent fevers.

Latex—irrit., in combination with *Euphorbia neriifolia* used as purg.

Powdered flowers—in colds, coughs, asthma and indigestion.

Bitter resins akundarin, calotropin (*Merck's Index*, 1929, 370; *J. chem. Soc.*, 1915, 1437; *J. Indian chem. Soc.*, 1933, 107; 1936, 34; *Indian J. vet. Sci.*, 1934, 64); latex contains 0·45% uscharin, 0·15% calotoxin, 0·15% calactin; fatal dose of uscharin 0·5 microgram and of calotoxin 0·7 microgram per g. of frog (*Chem. Abstr.*, 1939, 1742; 1941, 6393); cardioactivity in cats compared with ouabain taken as 100 is: calotropin 83, calotoxin 76, uscharin 58 (*J. Pharmacol.*, 1942, 223; *Chem. Abstr.*, 1942, 2921); latex also contains α-calotropeol, β-calotropeol, β-amyrin and calcium oxalate; it also yields a nitrogen and sulphur containing fish and cardiac poison, gigantin (*Proc. Indian Acad. Sci.*, 1943, 145; 1945, 143; *Chem. Abstr.*, 1941, 6393); latex also contains traces of glutathione and a proteoclastic enzyme similar to papain (*Proc. Indian Acad. Sci.*, 1938, 399; *J. Indian chem. Soc.*, 1936, 34); stem bark contains α- and β-calotropeols, β-amyrin, giganteol; flowers contain esters of α- and β-calotropeols, β-amyrin (*Proc. Indian Acad. Sci.*, 1944, 8; 1945, 304); root bark contains β-amyrin, two isomeric crystalline alcohols, giganteol and isogiganteol (*Proc. Indian Acad. Sci.*, 1944, 147; 1945, 138); latex is a strong irrit. to the skin and mucous membrane; an extract injected into the lymph sac of a frog caused slowing of the heart and acute gastro-enterites (*Indian J. vet. Sci.*, 1934, 63).

Common throughout India.

C. procera (Ait.) R. Br.

S.–*Alarka*; H.–*Akada, Madar*; P.–*Ak*; Marathi–*Mandara*; Tam.–*Vellerukku*.

Properties same as of *C. gigantea*.

Leaves and stalks contain calotropin and calotropagenin (*Chem. Abstr.*, 1937, 1031); latex contains uscharin 0·45%, calotoxin 0·15% and calactin 0·15%; lethal dose of first two are 0·5 microgram and 0·7 microgram per g. of frog respectively (*Chem. Abstr.*, 1939, 1742);

shrubs contain calotropin, calotoxin and uscharin; cardioactivity in cats compared with ouabain taken as 100 is: 83, 76 and 58 respectively (*J. Pharmacol.*, 1942, 223; *Chem. Abstr.*, 1942, 2921).

More or less throughout India in warm dry places from the N.W. Frontier Province and the Punjab to western, central and southern India; abundant in the sub-Himalayan tracts and the adjacent plains in the north-west.

CALTHA (*Ranunculaceae*)

C. palustris Linn.

P.–*Mamiri, Mumiri, Baringu.*

Roots—acrid, poisonous.

Roots contain helleborin and veratrin (Chopra, 470; *Chemikerztg*, 1917, 61; *Arch. Pharm., Berl.*, 1910, 463; *Chem. News*, 1916, 295; *Apothekerztg, Berl.*, 1916, 578; *Helv. chim. acta*, 1932, 1195; *Chem. Zbl.*, 1933, I, 233).*

Western temperate Himalayas from Kashmir to Nepal, 7,500-10,000 ft.

CALYCOPTERIS (*Combretaceae*)

C. floribunda Lam.

H.–*Kokaray*; Marathi–*Ukshi*; Tam.–*Minnargodi*; Tel.–*Adivijama*; S.–*Shvetadhataki.*

Leaves—bitter, astrin., anthelm., laxt., in colic, ground and administered with butter as cure for dysen. and malaria, external application for ulcers.

Root—in snake-bite.

Calycopterin (*Biochem. J.*, 1934, 1964); leaves contain 7% tannin (*Indian For. Leafl.*, No. 72, 1944, 6); leaves yield 0·28-0·29% calycopterin (*Indian J. Pharm.*, 1948, 98; *Chem. Abstr.*, 1949, 3565); calycopterin more toxic to earthworms than santonin or oil of chenopodium, but less toxic than CCl_4 or thymol (*Proc. Indian Acad. Sci.*, 1948, 121; *Chem. Abstr.*, 1949, 3566).

S. India in deciduous forests, Madhya Pradesh, Orissa, Assam, Chittagong.

CAMELLIA (*Theaceae*; *Ternstroemiaceae*)

C. kissi Wall. syn. *C. drupifera* Dyer non Lour.

Nepal–*Kissi*; Khasia Hills–*Dieng-tyrnem-bhai.*

Oil cake from the seeds used in Tongking to stupefy fish.

Leaves—used as subst. for tea in Naga Hills.

E. Himalayas, at 3,000-7,000 ft., from Nepal to Bhutan; in Assam and the Khasia Hills, at 5,000-8,000 ft.

C. sinensis (Linn.) Kuntze syn. *C. thea* Link; *C. theifera* Griff.

H., B., P. & Bo.–*Cha, Chai*; Tam.–*Thayilai*; Tel.–*Theyaku.*

Tea leaf—astrin., stim., gently excitant, diur.

Distinctive character of tea beverage due to caffeine, polyphenols, essen. oil (Wealth of India, II, 38; *Ber. dtsch. chem. Ges.*, 1885, 79; 1930, 225, 1890; *Ber. dtsch. pharm. Ges.*, 1901, 339; *J. Ass. off. agric. Chem., Wash.*, 1923, 154; *Arch. Pharm., Berl.*, 1901, 363; *J. pharm. Soc. Japan*, 1931, 29); leaf contains carotene, riboflavin, nicotinic acid, pantothenic acid and ascorbic acid (*Analyst*, 1934, 385; 1936, 303; 1945, 2; *Nature, Lond.*, 1944, 100; *J. Soc. chem. Ind., Lond.*, 1940, 272); malic acid, oxalic acid, kaempferol, quercetin (*Chem. Abstr.*, 1937, 1407); theophylline, theobromine xanthine, hypoxanthine, adenine, gums, dextrins and inositol (Wehmer, II, 779; *Chem. Abstr.*, 1948, 6493); characteristics of polyphenols (*Chem. Abstr.*, 1930, 1640, 5757; 1931, 3637, 4249; 1934, 6141; 1935, 2041; 1936, 1139; 1937, 1902; 1940, 89; *Biochem. J.*, 1939, 1408; 1940, 1472); fresh spring leaves yield 0·014% and fresh summer leaves 0·007% of volatile oil (Winton & Winton, IV, 104); constituents of volatile oil from green tea (*Chem. Abstr.*, 1934, 3178; 1935, 4895, 8229; 1936, 6889; 1937, 6814, 6815).

Assam and hilly country to the east and south of it. Cultivated in the hilly districts of North and South India up to an altitude of 7,000 ft. Principal tea-growing areas in North India lie in Brahmaputra and Surma valleys of Assam and in Darjeeling and Jalpaiguri districts of North Bengal. Other tea-growing areas are Ranchi, Dehra Dun, Kangra and Kumaon districts. In South India in the hilly regions of Western Ghats comprising the State of Travancore-Cochin, the districts of South Malabar, Coimbatore and the Nilgiris.

C. thea Link; see **C. sinensis** (Linn.) Kuntze

C. theifera Griff.; see **C. sinensis** (Linn.) Kuntze

CANANGA (*Annonaceae*)

C. odorata Hook. f. & Thom. syn. *Canangium odoratum* Baill.

Burm.–*Kadatnyan*; Tam.–*Maladi, Karumugai*; Tel.–*Chettu sampangi.*

Oil — used as an application in cephalalgia, ophthalmia and gout.

Flowers yield essen. oil; on distillation the first fraction consists principally of volatile oxygenated ester constituents and traces of terpenes, and forms the ylang-ylang oil; the second fraction consists chiefly of sesquiterpenes and forms the cananga oil (Wealth of India, II, 51; *J. sci. industr. Res.*, 1947, suppl., 18; *Chem. Abstr.*, 1935, 6697; 1936, 2699); an essen. oil prepared from the leaves (*Schimmel Rep.*, 1938, 12).

Cultivated throughout India in the gardens.

CANANGIUM (*Annonaceae*)

C. odoratum Baill.; see **Cananga odorata** Hook. f. & Thom.

CANARIUM (*Burseraceae*)

C. bengalense Roxb.

Assam & Sylhet–*Nerebi, Dhuna*; B.–*Dhuna*.

Leaves and bark—used externally for rheum. swellings.

Resin (*Rep. Bd sci. Adv. India*, 1911-12, 33).

Assam, Sylhet and North Bengal up to 3,000 ft.

C. commune Linn.

H.–*Jangli-badam*; Bo.–*Jangli-badana*; Kan.–*Kagli-mara*; Mal.–*Karaichingasi*.

Resin—in form of ointment applied to indolent ulcers; subst. for Mistura Amygdalae.

Fruit—laxt.

In Cambodia tuber considered stim., bechic, diaphor. and styptic.

Essen. oil from oleoresin contains 34% anethole and small quantity of terpenes (*Bull. imp. Inst., Lond.*, 1921, 459; 1922, 496; *J. sci. industr. Res.*, 1948, suppl., 122); seeds contain: moisture 3·76; protein 19·57; fat 72·84; ash 3·85% (*Philipp. J. Sci.*, 1930, 99).*

Cultivated in India particularly in Travancore.

C. strictum Roxb.

H. & B.–*Kala-dammar*; Bo.–*Dhup*; Tam.–*Karupu-damar*; Tel.–*Nalla rojanamu*; Mal.–*Karuttukungiliyam*; S.–*Raladhupa*.

Gum—used with gingili oil in rheum. pains; in chr. skin diseases.

Essen. oil (*J. Soc. chem. Ind., Lond.*, 1925, 169; Wehmer, II, 656).*

Forests of the west coast from Konkan southwards through Kanara, Malabar, Coorg, Mysore to Travancore and Cochin up to about 5,000 ft.

CANAVALIA (*Leguminosae*)

C. ensiformis (Linn.) DC.

H.–*Bara sem*; B.–*Makhan shim*; Marathi–*Pandhri abai*; Tam.–*Vellai tambattai*; Tel.–*Vella tamma*.

Fruits—if eaten create abdominal complaints, hernia and colic.

Cystin, tyrosin, tryptophan, etc., and alk. (*J. biol. Chem.*, 1914, 449; 1916, 67; 1925, 257; 1926, 435); seed—arginine (*Biochem. Z.*, 1932, 10); three crystalline globulins isolated, viz. canavalin, concanavalin A and concanavalin B; jack bean contains canavanine, arginine, desaminocanavanine, choline, trigonelline, betonicine, caneine and kitogine (*Hoppe-Seyl. Z.*, 1939, 103; *Chem. Abstr.*, 1937, 1468, 4275; 1938, 5034, 7934; 1940, 2335); no adverse effects obtained by feeding and drenching experiments on rabbits and sheep (*Onderstepoort J. vet. Sci.*, 1937, 573; *Chem. Abstr.*, 1938, 7572); toxicity of seeds not due to HCN (present in 0·00085-0·0016%) or cyanogenetic glucd. but to some other principle (*Boll. Soc. ital. Biol. sper.*, 1945, 200; *Chem. Abstr.*, 1946, 6123).*

Cultivated in India.

C. virosa (Roxb.) W. & A.

B.–*Kath-shim*; Bo.–*Gowara*; H.–*Sem*; Mal.–*Kattuvalamara*; S.–*Khadya*; Tam.–*Kattuttambattan*; Tel.–*Karutamma*.

Seeds—narcotic, poisonous.

Bundelkhand, Purnea, Puri, Angul and other parts of India such as Deccan, Carnatic, Konkan, Belgaum, Bengal and Uttar Pradesh.

CANNA (*Cannaceae*)

C. orientalis Rosc. syn. *C. indica* Linn. var. *orientalis* Rosc.

S.–*Devakili, Sarvajaya*; H.–*Sabbajaya*; B.–*Sarbajaya*; P.–*Hakik*; Marathi–*Devakeli*; Mal.–*Kattuvalla*; Tam.–*Kalvalai*; Tel.–*Krishnatamara*.

Root—diaphor., diur., in fevers and dropsy, demulc., stim.

Stalks—cut into pieces and boiled with rice water and pepper given to cattle as antid. for effects produced by eating poisonous grasses.

Widely cultivated throughout India.

CANNABIS (*Cannabinaceae*)

C. sativa Linn. syn. *C. indica* Lam.

S.–*Bhanga, Ganjika*; H., B. & Bo.–*Bhang, Charas, Ganja*; P.–*Bhang*; Tam.–*Bhangi, Ganja*; Tel.–*Ganzai*.

Plant—used as tonic, intoxicant, stomch., antisp., analgesic, narcotic, sedative and anodyne.

Cannabinol, pseudo-cannabinol, cannabinin (*Arch. exp. Path. Pharmak.*, 1903, 266; *Pharm. Acta Helvet.*, 1926, 210; *J. chem. Soc.*, 1896, 539; 1931, 630; *Proc. chem. Soc., Lond.*, 1898, 44; *Bull. Sci. pharm.*, 1924, 321; *Analyst*, 1935, 313; *J. Amer. chem. Soc.*, 1940, 2204); resin, cannin (*Arch. Pharm., Berl.*, 1938, 150); Egyptian variety contains cannabidiol, cannabol and cannabinol (*Nature, Lond.*, 1940, 350; *Chem. Abstr.*, 1940, 3441, 5452; *J. chem.*

Soc., 1940, 649); biological activity of cannabis is due to alcoholic and phenolic compounds (*J. Pharm. Belg.*, 1938, 683, 702, 723; *Chem. Abstr.*, 1939, 2283); 0·5 mg. resin produces sensory hyperesthesia (excitement) in fish, followed by somnolence and paralysis—a good biological test for cannabinol (*Bull. Sci. pharm.*, 1939, 222; *Chem. Abstr.*, 1939, 7393); pure cannabinol has no hashish activity; physiologically active fraction is a reddish brown oil (*Industr. Engng Chem.* (*News*), 1939, 117]; resin contains a crystalline compound cannin; orally administered to a dog in dose of 0·1 mg./kg. produces inco-ordination of movements after 2 hr. which persists for 4 hr. (*Science*, 1940, 602; *Chem. Abstr.*, 1940, 6018); alcoholic extracts of American cannabis vary considerably in their relative activities (*J. Pharmacol.*, 1942, 21; *Chem. Abstr.*, 1942, 7232); effect of alkali-insoluble fraction of charas on cats is similar to, but considerably greater than, the synthetic homotetrahydrocannabinol (*Indian J. med. Res.*, 1945, 265; *Chem. Abstr.*, 1946, 7525).

Naturalized in the sub-Himalayan tract and abundant in wastelands from Punjab eastwards to Bengal and Bihar and extending southwards to Deccan.

Cultivated for the narcotic drug.

CANSCORA (*Gentianaceae*)

C. decussata Schult.

S.–*Sankhapushpi*; H.–*Sankhaphuli*; B.–*Dankuni*; Marathi–*Sankhvel.*

Plant—laxt., alter., nerve tonic.

Fresh juice of plant—prescribed in insanity, epilepsy and nervous debility.

Throughout India up to an altitude of 4,000 ft. and growing in moist situations.

C. diffusa (Vahl) R. Br.

Burm.–*Kyoukpan.*

Plant—nervine tonic, subst. for *C. decussata.*

Throughout India.

CANTHIUM (*Rubiaceae*)

C. dicoccum (Gaertn.) Merr. syn. *C. didymum* Gaertn.; *Plectronia didyma* Kurz

Bo.–*Varsingi*; Marathi–*Arsul*; Tam.–*Imburuttan*; Santh.–*Garbhagoja*; Tel.–*Nalla balasu.*

Bark—used in fever.

Leaves contain hydrocyanic acid (Burkill, I, 442).

Sikkim Himalayas, Khasia and Jaintia Hills, all plain districts of the Madras State on both sides of the Peninsula.

C. didymum Gaertn.; see **C. dicoccum** (Gaertn.) Merr.

C. parviflorum Lam.

Bo.–*Kirni*; S.–*Gangeruki*; Tam.–*Karai*; Tel.–*Balusu.*

Decoct. of leaves and roots—prescribed in certain stages of flux.

Root—anthelm.

Bark and young branches—given in dysen. in Indo-China.

Western part of the Indian Peninsula from Konkan southwards to Ceylon, ascending up to 4,000 ft.

CAPPARIS (*Capparidaceae*)

C. acuminata Roxb.; see **C. zeylanica** Linn.

C. aphylla Roth.; see **C. decidua** Edgew.

C. decidua Edgew. syn. *C. aphylla* Roth.

S.–*Karira*; H.–*Karer*; P.–*Delha, Karil*; Bo.–*Kari*; Tam.–*Sengam*; Tel.–*Kariramu.*

Top shoots and young leaves—used as a plaster for boils and swellings; in powder form used to raise blisters and to relieve toothache, and as antid. to poison.

Bark—acrid, laxt., diaphor., alexeteric, anthelm., useful for cough, asthma and inflam.

Fruit—astrin., useful in cardiac troubles and biliousness.

Root and root bark—pungent, bitter, given in intermittent fevers and rheumatism.

Cutch, Sind, Baluchistan, W. Rajputana, Punjab, Upper Gangetic Plain, Madhya Bharat, Gujarat, Deccan, Tinnevelly.

C. grandis Linn. f.

Bo.–*Puchaonda*; Tam.–*Nakkulinjan, Turatta*; Tel.–*Oridonda*; Mal.–*Waghutty*; Gujarati–*Dhuti.*

Infusion of bark and leaves—used internally for swellings and eruptions.

Mt. Abu, W. Rajputana, Kanara, Carnatic, hill forests of the Deccan, eastern slopes of the W. Ghats from the Godavari southwards.

C. heyneana Wall.

H.–*Chayruka.*

Leaves—used in rheum. pains in the joints.

Flowers—laxt.

W. Ghats of S. Konkan and N. Kanara to Tinnevelly district.

C. horrida Linn. f.; see **C. zeylanica** Linn.

C. sepiaria Linn.

S.–*Kakadani*; B.–*Kaliakara*; H.–*Kanthari*; Marathi–*Kanthar*; P.–*Hiungarna*; Tam.–*Karunjurai*; Tel.–*Nallavuppi.*

Plant—febge., alter., tonic, useful in skin diseases.

Dry parts of India.

C. spinosa Linn.

Bo.–*Kabar*; H. & P.–*Kabra*; Kumaon–*Bussar*; Tel.–*Kokilakshamu*.

Root bark—aper., tonic, diur., expect., anthelm., emmen., analgesic, in rheumatism, paralysis, enlarged spleen and tubercular glands.

Leaves—bruised and used as poultice in gout.

Flower buds contain glucd. rutin (*Arch. Pharm., Berl.*, 1904, 210; 1908, 214); flower buds contain 4% pentosans on dry wt. basis (Winton & Winton, IV, 285); also contain rutic acid, pectic acid, a volatile emetic constituent, saponin, etc. (Wehmer, I, 391); seeds yield 34-36% of an oil (*Chem. Abstr.*, 1941, 6822).

Plains between the Indus and Jhelum, Salt Range, low inner valleys of the Himalayas, Chamba, Kumaon, Nepal, Bombay State, Sind, Konkan, Deccan, W. Ghats, Baluchistan, Waziristan.

C. zeylanica Linn. syn. *C. horrida* Linn. f.

H.–*Ardanda*; B.–*Kalokera*; Bo.–*Wag*; P.–*Karvila*; Tam.–*Adondai*, *Tondai*; Tel.–*Adonda*.

Root bark—sedative, stomch., antihidrotic, bitter, cholag. and in cholera.

Leaves—counter-irrit. and as cataplasm in boils, swellings and piles.

It contains an alk., a phytosterol, a mucilaginous substance and water-soluble acid (*J. Annamalai Univ.*, 1932, 176).

Throughout the greater part of India.

CAPSELLA (*Cruciferae*)

C. bursa-pastoris Medic.

Seeds—stim.

Plant—astrin., antiscor., in haematuria and dropsy; used as an astrin. in diar. and as a diur. in dropsy (*J. Bombay nat. Hist. Soc.*, 1939, 701).

Alk. bursine, saponin (*Pharm. Ztg, Berl.*, 1888, 52, 151; *Pharm. Zentralh.*, 1919, 237; *Apothekerztg*, 1920, 183; 1921, 359); plant bitter, given in form of fluid extract, or administered intravenously or intramuscularly, controls haemor. of diverse origins (*Chem. Abstr.*, 1941, 8103); extracts of dried or green plants exert strong contracting effect on the uterus of guinea-pigs (*Chem. Abstr.*, 1928, 2003); sulphur-containing glycoside isolated from the alcoholic extract of the plant (*Chem. Abstr.*, 1932, 6063); young green leaves contain ascorbic acid (*Chem. Abstr.*, 1947, 6935); seeds yield 35% of a fatty oil (*Chem. Abstr.*, 1931, 2858; Wehmer, Suppl., 40); the pericarp and the epidermis of green parts contain the rhamnoglycoside, hyssopin (Wehmer, I, 413).

A weed of cultivation throughout temperate India, particularly abundant in north-western Himalayas.

CAPSICUM (*Solanaceae*)

C. annuum Linn.

H. & P.–*Lal-mircih*; B.–*Lankamorich*, *Lalmorich*; Tam.–*Mulagay*; Tel.–*Mirapakaya*.

Fruit—stim. externally as rubft., used in putrid sore throat and scarlatina, also in ordinary sore throat, hoarseness, dyspep. and yellow fever; in diar. and piles; in snake-bite.

Capsicin, capsaicin, solanine (*Arch. Pharm., Berl.*, 1892, 108; *J. chem Soc.*, 1919, 1109; *Chem. Zbl.*, 1884, 577); the pungent principle is capsaicin and its maximum concentration is found in the inner walls (*Trop. Agriculturist*, 1940, 271; *Chem. Abstr.*, 1942, 3573); chemical composition (*Hlth Bull.*, 1941, No. 23, 36).

Extensively cultivated throughout India and constitutes the principal source of dry chilli of commerce.

C. frutescens Linn. syn. *C. minimum* Roxb.

English–*Birdchilli*.

Fruit—acrid, stim., in atonic dyspep., stomch., in indign., diar. and externally as rubft.

Pungent principle capsaicin 0·2%, but occasionally as high as 1% (*Trop. Agriculturist*, 1940, 271).

Cultivated but not extensively, often found as an escape.

C. minimum Roxb.; see **C. frutescens** Linn.

CARALLIA (*Rhizophoraceae*)

C. brachiata (Lour.) Merr. syn. *C. integerrima* DC.

B.–*Kierpa*; Marathi–*Panasi*; Mal.–*Varanga*; Tel.–*Karalli*; Assam–*Kanthekera*.

Fruits—used in treatment of contagious ulcers.

Bark—for itch.

Eastern Himalayas, Assam, Bengal, Burma, S. India, Andamans.

C. integerrima DC.; see **C. brachiata** (Lour.) Merr.

C. lucida Roxb. ex Kurz; see **C. brachiata** (Lour.) Merr.

CARALLUMA (*Asclepiadaceae*)

C. attenuata Wight

Bitter principle (Dymock, Warden & Hooper, 451).

South Deccan Mts., Nilgiris, Palneys.

C. edulis Benth. ex Hook. f.

P.–*Chung*; S.–*Dugdha.*

Plant—cooling, alter., anthelm., in leprosy and diseases of blood.

Punjab, Baluchistan, Sind.

CARAPA (*Meliaceae*)

C. granatum (Koenig) Alston syn. *C. obovata* Blume; *C. moluccensis* W. P. Hiern in Fl. Br. Ind., non Lam.

B.–*Dhundal, Pussur*; H.–*Pussur*; Tam.–*Kandalangay.*

Fruit—used as a cure for swellings of the breast and elephantiasis.

Bark—astrin., used for dysen., diar., other abdominal troubles and as febge..

Seed kernels—bitter tonic.

Seed ash—mixed with sulphur and coconut oil applied as ointment for itch.

Tannin in different parts of the plant (*Indian For. Rec.*, 1924, 191); seeds yield 1-2% of an oil (*Indian For.*, 1925, 199).

Coastal regions of India, Ceylon, Burma, Malaya.

C. moluccensis Lam.

Uses similar to *C. granatum.*

Coastal regions of Andaman Islands, but not of the Indian Peninsula.

C. obovata Blume; see **C. granatum** (Koenig) Alston

CARDAMINE (*Cruciferae*)

C. impatiens Linn.

Plant—stim., diur.

Temperate Himalayas from Kashmir to Sikkim, 5,000-12,000 ft.

C. pratensis Linn.

Plant—stim., diaphor., diur.

Flowering tops—in epilepsy.

Seeds contain myronic acid and an oil similar to mustard oil (U.S.D., 1385).

Kashmir and Western Tibet.

CARDANTHERA (*Acanthaceae*)

C. uliginosa (Nees) Buch.-Ham.

Juice of leaves—mixed with salt used as blood purifier in Malabar.

In drying rice swamps of N. Circars, Carnatic, Anamalais at 800 ft., Sikkim Terai.

CARDARIA (*Cruciferae*)

C. draba Desv. syn. *Lepidium draba* Linn.

Afgh.–*Bijindak.*

Plant—antiscor.

Seeds—used as cure for flatulency, fish poison.

Young leaves contain HCN.

A weed of cultivation in the Punjab and N.W. Frontier Province.

CARDIOSPERMUM (*Sapindaceae*)

C. halicacabum Linn.

S.–*Karnasphota*; H.–*Kanphuti*; B.–*Lataphatkari*; Tam.–*Mudukottan*; Tel.–*Buddakakara.*

Plant—in rheumatism, stiffness of limbs and snake-bite.

Root—diaphor., diur., aper., laxt., rubft., emmen., occasionally used for rheumatism, lumbago and nervous diseases.

Leaves—rubft., useful as poultice for rheumatism.

Leaf juice—used as a cure for earache.

Plant contains saponin (*Meded. PlTuin, Batavia*, 1900, 38; Burkill, I, 458); root ineffective in treatment of chr. rheumatism (Koman, 1919, 14).

Throughout the plains of India, ascending to 4,000 ft. in the N.W. Himalayas.

CARDUUS (*Compositae*)

C. nutans Linn.

Kash.–*Gulibadaward*; P.–*Badaward, Kanchhari.*

Flowers—febge., used to purify blood.

Seeds from plants grown in Russia contain 41-44% oil (Wehmer, Suppl., 41).

W. Himalayas from Kashmir to Simla, 6,000-12,000 ft.

CAREX (*Cyperaceae*)

C. cernua Boott

Plant—said to be toxic to cattle producing lack of appetite, loss of milk and nervous symptoms.

Assam.

CAREYA (*Lecythidaceae*)

C. arborea Roxb.

S., H. & B.–*Kumbhi*; Tam.–*Ayma*; Tel.–*Araya*; Mal.–*Alam.*

Bark and fruit—astrin., demulc.

Flowers and juice of fresh bark—given with honey as demulc. in coughs and colds.

Bark—used as antipyr., antipruritic in eruptive fevers, particularly in smallpox and in snake-bite.

Root, bark and leaves—fish poison.

Leaves contain 19% tannin (Wealth of India, II, 76).

Sub-Himalayan tract from the Kangra district eastwards, Bengal, Central, Western and Southern India, up to 5,000 ft.

CARICA (*Caricaceae*)

C. papaya Linn.

H.–*Papaya*; B.–*Papeya*; Bo.–*Papai*; Tam.–*Pappayi*; Tel.–*Boppayi*; Mal.–*Pappayam.*

Milky juice of unripe fruits—used as a cosmetic to remove freckles and other blemishes from the skin; anthelm., particularly effective in the expulsion of lumbrici.

Ripe fruit—stomch., carmin., diur.

Seeds—vermifuge, emmen., used to quench thirst.

Carpaine, carposide, papain (*Ber. dtsch. chem. Ges.*, 1890, 3537; *Arch. Pharm., Berl.*, 1893, 184; 1897, 332; *Philipp. J. Sci.*, 1915, 1); analysis of fruits (*Hlth Bull.*, 1941, No. 23, 39); fresh fruit pulp contains sucrose, invert sugar, a resinous substance, papain, malic acid and salts of tartaric and citric acid (Wehmer, II, 807); both ripe and unripe fruits are rich sources of pectins (*Proc. Indian Acad. Sci.*, vol. 29B, 1949, 155); carotenoid pigments in fruit (*Chem. Abstr.*, 1933, 3480, 5373; 1934, 3077; *J. sci. industr. Res.*, 1949, 35B); fruit, rich source of vitamins (*Chem. Abstr.*, 1937, 7138, 1947, 2507); seeds yield a sulphur-containing basic substance carpasemine (*Proc. Indian Acad. Sci.*, vol. 18A, 1943, 140); a glycoside, carposide and an alk., carpaine found in leaves; carpaine also present in bark, root and seeds in traces (Wehmer, II, 807); carpaine heart poison but not of the cardiac glucoside type; it is also a potent amoebicide (Henry, 1949, 599); leaves contain vitamins C and E (*Chem. Abstr.*, 1941, 1832; 1947, 5643); a sinigrin-like glycoside probably identical with carposide and a myrosin-like enzyme found in roots (Wehmer, II, 807); two enzymes, papain and chymopapain, have been isolated in a crystalline form from the latex (*Science*, 1937, 379; *J. biol. Chem.*, 1939, 699).*

Commonly cultivated, and is more or less naturalized in India.

CARISSA (*Apocynaceae*)

C. carandas Linn.

H. & Bo.–*Karaunda*; B.–*Karamcha*; S.–*Kanachuka*; Tam.–*Kalakkay*; Tel.–*Vaka*; Mal.–*Karakka*.

Fruit—antiscor.

Unripe fruit—astrin.

Ripe fruit—cooling, acid.

Root—bitter, stomch., anthelm.

Decoct. of leaves—given at the commencement of remittent fever.

Alk., salicylic acid (Dymock, Warden & Hooper, II, 420); analysis of fruit (*Hlth Bull.*, No. 23, 1941, 39).

Wild throughout India, sometimes cultivated for its fruit.

C. spinarum Linn.

S.–*Karamadika*; H.–*Karaunda*; P.–*Garna*; Tel.–*Kalivi*; Tam.–*Chiru*; Kash.–*Garaunda*.

Root—ground and put in worm-infested sores of animals; enters into the composition of purgatives.

Throughout India in dry regions, especially in Punjab, Kashmir and N.W. Frontier Province.

CARPESIUM (*Compositae*)

C. abrotanoides Linn.

Kash.–*Wotiangil*; Pers.–*Hukamandaz*.

In China root, leaf and seed considered diur. and anthelm.

In Indo-China seeds considered laxt. and bechic.

Seeds said to be used medicinally in Kashmir (Stewart).

Temperate Himalayas from Kashmir, 5,000-10,000 ft., to Sikkim, 8,000-10,000 ft.

C. cernuum Linn.

Herb—used in China as astrin., diur., anthelm.

Roots contain inulin (Wehmer, II, 1268).

Temperate Himalayas, Khasi and Nilgiri Hills.

CARTHAMUS (*Compositae*)

C. lanatus Linn.

Plant—used in France as sudorific, febge. and anthelm.

Seeds yield an oil; analysis of the oil (*J. Coun. sci. industr. Res. Aust.*, 1946, 86).

Kashmir, 5,000-6,000 ft.

C. oxyacantha Bieb.

H. & P.–*Kantiari, Poli*.

Oil from seeds—used as a dressing for bad ulcers and as remedy for itch.

Seeds yield a fatty oil (*Analyst*, 1916, 72; *Indian Tr. J.*, 1916, 385; *Proc. Indian Acad. Sci.*, vol. 27A 1948, 147).

Wild in the arid tracts of Punjab, Baluchistan, N.W. Frontier Province, a troublesome weed.

C. tinctorius Linn.

H. & B.–*Kusum*; Bo.–*Kusumba*; S.–*Kusumbha*; Tam.—*Sendurakam*; Tel.–*Kushumba*.

Seeds—purg., used in rheumatism, diur., tonic.

Oil—charred and used for healing sores and in rheumatism.

Flowers—laxt., diaphor., in jaundice, stim., sedative, emmen.

Colouring matter carthamin (*J. Soc. chem. Ind., Lond.*, 1898, 989; 1919, 36; *J. chem. Soc.*, 1910, 1415; *Oil Fat Industr.*, 1929, No. 4, 11); oil content of seeds ranges from 20 to 30% (Wealth of India, II, 87).

Cultivated throughout a large part of India.

CARUM (*Umbelliferae*)

C. bulbocastanum Koch

H.–*Kala-zira, Siya-zirah*; Kash.–*Gunyun*; Tam.–*Shemai-shiragam*; Tel.–*Sima-jilakara*; Mal.–*Shima-jirakam.*

Fruits—used for similar purposes as those of *C. carvi.*

Fruit yields 2% essen. oil containing 18% aldehydes (Wehmer, II, 879).

Kashmir, 6,000-9,000 ft., Baluchistan.

C. carvi Linn.

H.–*Shiajira, Zira*; B.–*Jira*; Bo.–*Wilayti-zirah*; Tam.–*Shimai-shembu*; Tel.–*Shimaisapu*; P.–*Zira-siah*; S.–*Sushavi.*

Fruits—stomch., carmin., lactag.

Essen. oil (*Ber. Schimmel u. Co., Lpz.*, 1925, 43; *Analyst*, 1909, 519); carvone content of oil 45-65% (Winton & Winton, IV, 437); the volatile oil contains a mixture of ketone, carvone, a terpene and traces of carvacrol (Wealth of India, II, 89).*

Wild in the north Himalayan regions. Cultivated in the plains as a cold season crop and in the hills of Kashmir, Kumaon, Garhwal and Chamba at altitudes of 9,000-12,000 ft. as a summer crop.

C. copticum Benth. & Hook. f.; see **Trachyspermum ammi** (Linn.) Sprague

C. petroselinum Benth. & Hook. f.; see **Petroselinum crispum** (Mill.) Nym. ex auct Kew

C. roxburghianum Benth. & Hook. f.; see **Trachyspermum roxburghianum** (DC.) Sprague

CARYOPHYLLUS (*Myrtaceae*)

C. aromaticus Linn.; see **Syzygium aromaticum** (Linn.) Merr. & Per.

CARYOTA (*Palmae*)

C. mitis Lour.

Malay–*Beredin.*

Fresh juice of fruit—irrit.

Not common in India, but widely distributed in the Andaman Islands.

C. urens Linn.

Bo.–*Birlimhad*; H.–*Mari*; S.–*Dhoajavriksha, Mada*; Tam.–*Irambanai, Tippili*; Tel.–*Jilugujattu*; Mal.–*Anapana*; Assam–*Baraflawar.*

Nut—acrid, cooling, to allay thirst and fatigue; used as an application to the head in cases of hemicrania.

Freshly drawn toddy—laxt.

Fresh juice of the palm contains 13·6% sucrose and a trace of reducing sugar, while fermented juice or toddy contains 1% reducing sugar, 3-4·5% alcohol and 0·3% acetic acid (*Trop. Agriculturist*, 1938, 22).

Moist forest regions of the western and eastern coasts and in the cool and shady valleys of Chota Nagpur, Orissa, North Bengal and Assam up to 5,000 ft. above sea level. Commonly cultivated in the gardens.

CASEARIA (*Samydaceae*)

C. esculenta Roxb.

Marathi–*Mori*; Bo.–*Bokra*; Tam.–*Kottargovai*; Mal.–*Malampavatta*; Kan.–*Doddahanise*; S.–*Bhurigandha.*

Root—astrin., cath., promotes action of liver.

Decoct. of root—used in diabetes and piles.

Roots contain a resin, tannic acid, colouring matter and starch; bark contains tannin and a principle allied to cathartic acid (Nadkarni, 174).

Konkan, S. Mahrata Country, N. Kanara, S. Kanara to Cochin, eastern coast, in the Circars and southwards, Carnatic.

C. graveolens Dalz.

H.–*Chilli, Naro*; Mal.–*Cherukannan*; Marathi–*Bokhada*; Garhwal–*Pimperi.*

Fruit—fish poison.

Leaves—poisonous.

Upper Gangetic Plain, westwards to Chenab, ascending to 5,000 ft., Garhwal Himalayas, Kumaon, Sikkim, Konkan, Deccan, N. Circars in Ganjam.

C. tomentosa Roxb.

H.–*Chilla*; Bo.–*Chillara*; Tam.–*Kadichai, Kutti*; Tel.–*Chilakaduddi*; Mal.–*Anakkarana.*

Fruit—fish poison.

Bark—bitter, applied externally in dropsy.

Pulp of fruit—diur.

Throughout India ascending to 3,000 ft. in the Himalayas.

CASSIA (*Leguminosae*)

C. absus Linn.

H.–*Chaksu*; Bo.–*Chaksie*; Tam.–*Mulaippal-virai*; Tel.–*Chanupala vittulu*; Mal.–*Karinkolla.*

Leaves—bitter, astrin., as cough remedy.

Seeds—astrin., cath., for ringworm, skin affections, in conjunctivitis and ophthalmia.

Seed kernels yield 1·5% total base consisting of chaksine and isochaksine; chaksine is general depressant of heart, respiration and nerves; lethal dose for frog 0·1 g./kg. (*Proc. Indian Acad. Sci.*, vol. 2A, 1935, 421; *Chem. Abstr.*, 1936, 1799; 1941, 1058; *J. Indian chem. Soc.*, 1940, 281; 1941, 589; *J. sci. industr. Res.*, 1945-46, 701); seed oil composition (*Chem. Abstr.*, 1935, 8376).

Throughout India.

C. alata Linn.

B.–*Dadmari*; Bo.–*Dadamardana*; H.–*Dadmurdan*; Tam.–*Anjali*; Tel.–*Simayavisa*; Mal.–*Elakajam*.

Leaves—used for ringworm, in snake-bite.

Decoct. of leaves and flowers—used internally in broncht. and asthma and for washing eczematous patches.

Plant—poisonous to livestock and fish.

Plant contains chrysophanic acid (*Z. allg. ost. ApothVer.*, 1887, 589; *Bull. Sci. pharm.*, 1927, 10; Burkill, I, 482).

Lower Bengal.

C. angustifolia Vahl

H.–*Hindisana*; Marathi–*Sonamukhi*; B.–*Sanna-makki*; Tam.–*Nila virai*; Tel.–*Nela-tangedu*; Mal.–*Nila vaka*.

Leaves and fruits—laxt., purg.

Glucd., kampferin, anthraquinone, essen. oil; chrysophanic acid, isorhamnetin; Ca oxalate 12% in leaves (Wehmer, I, 506; *Arch. Pharm., Berl.*, 1900, 427; *J. chem. Soc.*, 1913, 2006; *Bull., Sci: pharm.*, 1922, 617); leaves contain calcium salts, 0·1% of flavanols, isorhamnetin, kaempferol, rhein 0·03% and small amount of emodin; ash contains CaO 31·6, MgO 7·2, P_2O_5 3·6 and SiO_2 2·7% (*Proc. Indian Acad. Sci.*, vol. 10A, 1939, 96; *Chem. Abstr.*, 1940, 1443); a new crystalline compound isolated (*Indian J. Pharm.*, 1940, 203); two glycosides, sennoside A and sennoside B, believed to be the laxt. principle of senna have been isolated (U.S.D., 1022); occurrence of oxymethyl-anthraquinone in fruit up to 1·33% reported (*Chem. Abstr.*, 1939, 5596; Wehmer, I, 505).*

Cultivated in South India in Tinnevelly, Madura and Trichinopoly districts. Recently introduced into Mysore.

C. auriculata Linn.

H. & B.–*Tarwar*; Tam.–*Avaram*; Tel.–*Tangedu*; Mal.–*Avara*; Marathi–*Tarwad*.

Bark and root—astrin.

Root—used in skin diseases.

Leaves and fruits—anthelm.

Seeds—in ophthalmia and conjunctivitis, in diabetes and chylous urine.

Bark contains tannin 15·2-19·1% (*Chem. Abstr.*, 1928, 1872; Wehmer, I, 505; *J. int. Soc. Leath. Chem.*, 1928, 53).

Wild in the dry regions of the Madhya Pradesh, W. Peninsula and Rajputana desert. Cultivated in other parts of India.

C. burmanni Wight; see **C. obovata** (L.) Collad.

C. fistula Linn.

S.–*Suvarnaka*; H.–*Amaltas*; B.–*Sundali*; Tam.–*Konnei*; Tel.–*Rela*; Marathi–*Bhava*.

Root bark, seeds and leaves—laxt.

Fruit—cath. applied in rheumatism and snake-bite.

Seeds—emetic.

Root—astrin., tonic, febgc., purg.

Juice of leaves—in skin diseases.

Leaves contain anthraquinone derivatives and very little tannin (*Bol. Acad. farm. Rio de J.*, 1942, 133; *Chem. Abstr.*, 1943, 1562); root bark besides tannin contains phlobaphenes and oxy-anthraquinone substance (*Indian med. Gaz.*, 1941, 211); pulp contains rhein, the major anthraquinone derivative, small amount of volatile oil, three waxy substances and a resinous substance (*Indian J. Pharm.*, 1952, 63).

Throughout India.

C. glauca Lam.

Marathi–*Mothatarvad*; Sing.–*Walahalla*; Tam.–*Kovalai*; Tel.–*Kondatantemu*; Mal.–*Vellatakara*.

Bark and leaves—in diabetes and gonor.

Glucds., chrysophanic acid (*Ber. dtsch. chem. Ges.*, 1890, 3537).*

Throughout India.

C. javanica Linn.

In French Guiana it is used as subst. for *C. fistula*.

Planted in Calcutta, Bombay, very likely elsewhere.

C. mimosoides Linn.

Santh.–*Patwa-ghas*; Tel.–*Nelaponna*.

Roots—given in spasms of stomach.

Throughout India.

C. obovata (L.) Collad.

Bo.–*Bhuitarwar*; Gujarati–*Suratisonamukhi*; H.–*Chottataroda*; Mal.–*Seruvanni*; S.–*Bhutalapota*; Tam.–*Kattunilavirai*; Tel.–*Sunamukhi*.

Leaves—purg., subst. for senna leaves.

Oxymethyl-anthraquinone isolated from leaflets and pods (*Bull. Sci. pharm.*, 1927, 10).

S. Mahrata Country, Deccan, Gujarat, Sind, Baluchistan, Punjab.

C. obtusifolia Linn.; see **C. tora** Linn.

C. occidentalis Linn.

H.–*Kasondi*; B.–*Kalkashunda*; S.–*Kasamarda*; Tam.–*Nattam-takarai*; Tel.–*Kasinda*; Mal.–*Natram-takara*.

Plant—febge., purg., diur., tonic.

Leaves, roots and seeds—purg.

Seeds and leaves—used externally in skin diseases, antiper.

Root—in snake-bite.

Emodin, oxymethyl-anthraquinones, toxalbumin (*Apothekerztg, Berl.*, 1896, 537; *C.R. Soc. Biol., Paris*, 1925, 862); seeds contain tannic acid, mucilage (36%), fatty oil (2·56%), emodin and a toxalbumin; chrysarobin isolated from the benzene extract of the seeds (*Chem. Abstr.*, 1944, 3033); fatty oil contents (Wehmer, Suppl., 42); oil constants (*Chem. Abstr.*, 1934, 2207).*

C. pumila Lam.
Marathi–*Sarmal*; Tel.–*Nallajiluga*; Kan.–*Nelatagache.*

In Indo-China seeds given as purg.

Throughout India.

C. siamea Lam.
Marathi–*Kassod*; Tam.–*Manje-konne*; Tel.–*Sima tangedu.*

Toxic alk. in pods and leaves (*Arch. exp. Path. Pharmak.*, 1911, 315; *Philipp. J. Sci.*, 1919, 1; Burkill, I, 480).

Western Peninsula.

C. sophera Linn.
H.–*Kasunda*; B.–*Kalkashunda*; Marathi–*Kasodi*; S.–*Kasamarda*; Tam.–*Sularai*; Tel.–*Kondakashinda*; Mal.–*Pounantakara.*

Properties similar to *C. occidentalis.*

Leaves—used externally in ringworm.

Decoct. of plant—used in acute broncht.

Plant contains emodin and chrysophanic acid (*Apothekerztg, Berl.*, 1896, 537; Wehmer, I, 505).

Throughout India.

C. tora Linn. syn. *C. obtusifolia* Linn.
S.–*Chakramarda, Dadamari*; H. & B.–*Chakunda*; Tam.–*Tagarai*; Tel.–*Tantemu*; Marathi–*Takla.*

Decoct. of leaves—laxt.

Leaves and seeds—in skin diseases, for ringworm and itch.

Root—in snake-bite.

Emodin, glucd. and a pleasant smelling fixed oil (5%) (*Pharm. J.*, 1889, 242; *Apothekerztg, Berl.*, 1896, 537; *J. Indian chem. Soc.*, 1930, 521).*

Throughout India as a weed.

CASSYTHA (*Lauraceae*)

C. filiformis Linn.
S.–*Akashavalli*; H.–*Amarbeli*; B. & Bo.–*Akasbel*; Mal.–*Akasavalli*; Tam.–*Erumaikkottan*; Tel.–*Nulutega.*

Plant—tonic, alter., in bilious affections, chr. dysen., urethritis and skin diseases; insecticidal; powdered and mixed with gingili oil, it is used as a hair tonic; mixed with butter and ginger it is used for cleansing inveterate ulcers.

Juice of the plant—mixed with sugar considered a specific in inflamed eyes.

Alk. 0·1% (*Meded. PlTuin, Batavia*, 1898, 23); the plant contains the alk. laurotetanine, which produces cramps, and in large doses even death (Wehmer, Suppl., 43; Burkill, I, 485); dulcitol isolated from the methyl alcohol extract of the plant (*Chem. Abstr.*, 1941, 1381).

A parasitic leafless twiner met with throughout the greater part of India, especially near the coast.

CASTANEA (*Fagaceae*)

C. sativa Mill. syn. *C. vulgaris* Lam.
English—*Sweet Chestnut.*

Aqueous infusion of leaves—tonic, astrin., effective in paroxysmal coughs and irritable conditions of the respiratory organs.

Leaves contain: moisture 46·0; protein 8·0; ether extr. 8·1; crude fibre 18·5; N-free extr. 60·9; and ash 4·4% (*Jt Publ. Commonw. agric. Bur.*, No. 10, 1947, 198); leaves, bark and wood contain tannin (*Bull. imp. Inst., Lond.*, 1927, 387).

Cultivated in many parts of the Himalayas especially in the Punjab, N.W. Frontier Province and Darjeeling and Khasi Hills.

CASTANOSPERMUM (*Leguminosae*)

C. australe A. Cunn.

Pods—astrin.

Unripe seeds—poisonous to cattle causing intense gastroenterites, but ripe ones are harmless (*Chem. Abstr.*, 1939, 3424); leaves contain saponin (Burkill, I, 489).

Cultivated usually as a shade tree in various parts of India.

CASUARINA (*Casuarinaceae*)

C. equisetifolia Linn.
H.–*Janglisaru*; B.–*Jau*; Bo.–*Vilayatisaro*; Mal.–*Chavukku*; Tam.–*Savukku*; Tel.–*Saruku.*

Bark—astrin., useful in diar. and dysen.

Decoct. of leaves—used in colic.

Bark contains colouring matter casuarin (*Pharm. Zentralh.*, 1884, 417; *Chem. Abstr.*, 1940, 283); bark contains 6-18% tannin (*Indian For. Leafl.*, No. 72, 1944, 7).

East side of the Bay of Bengal from Chittagong southwards, cultivated elsewhere in India.

CATHA (*Celastraceae*)

C. edulis Forsk.

Leaves and buds—chewed for their stimulating effect.

Leaf infusion—sweet, arom., astrin., given for relief in cough, asthma and other diseases of chest.

Leaves contain three alks. d-nor-iso-ephedrine, formerly called cathine, 0·27%, cathinine 0·15% and cathidine 0·32% (Henry, 1949, 635; Wehmer, II, 717); it has a stimulant narcotic action on the central nervous system (B.P.C., 1934, 1048); in large doses produces paralysis through direct action on the muscle (U.S.D., 1389); alk. cathine is closely related to benzedrine (*Arch. exp. Path. Pharmak.*, 1941, 100; *Chem. Zbl.*, 1943, II, 637; *Chem. Abstr.*, 1944, 4683).

Native of tropical Africa, reported to have been successfully introduced in Bombay, Ceylon and Mysore.

CAYRATIA (*Vitaceae*)

C. carnosa (Wall.) Gagnep. syn. *Vitis carnosa* Wall.

H.–*Amal-bel*; B.–*Amal-lata*; Marathi–*Ambat-bel*; Tel.–*Kurudinne*; Tam.–*Tumans*; Mal.–*Sorivalli*.

Root—astrin., ground with black pepper applied to boils.

Leaves—made into poultice employed in the treatment of yoke-sores on the necks of bullocks.

Stems, leaves and roots contain hydrocyanic acid (*Philipp. Agric.*, 1928, 335; Burkill, II, 2248).

Tropical Himalayas and throughout the hotter parts of India.

C. mollissima (Wall.) Gagnep.

Berries—used for poulticing swellings and aching parts.

South India.

C. pedata (Wall.) Gagnep. syn. *Vitis pedata* Vahl ex Wall.

S.–*Godhapadi*; B.–*Goalilata*; Marathi–*Gorpadvel*; Mal.–*Tripadi*; Tam.–*Kattuppirandai*; Tel.–*Gummaditige*.

Leaves—astrin., refrig., used for ulcers.

Leaf decoct.—used to check uterine reflexes.

Bengal, Assam, Western Ghats.

CEDRELA (*Meliaceae*)

C. toona Roxb.

S. & B.–*Nandivriksha*; H. & B.–*Tun*; Bo.–*Tuni*; Tam.–*Tunumaram*; P.–*Khusing*; Tel.–*Nandichettu*; Mal.–*Malarveppu*.

Bark—astrin., tonic, antiper., in chr. infantile dysen., external application for ulcers.

Flowers—emmen.

Bitter substance, red colouring matter nyctanthin (*Rep. gen. Chim. pure appl.*, 1860, 72; *J. chem. Soc.*, 1912, 1538); wood yields essen. oil 0·44% (*J. Soc. chem. Ind., Lond.*, 1931, 220; *Chem. Zbl.*, 1931, II, 2670; *Ber. Schimmel u. Co., Lpz.*, 1932, 12; *J. Indian chem. Soc.*, 1950, 77).

Sub-Himalayan tract from the Indus eastwards, Chittagong, Assam, Chota Nagpur, Ganjam, W. Ghats of Bombay to the Nilgiris and Anamalais and other hills of the W. Peninsula.

CEDRUS (*Pinaceae*)

C. deodara (Roxb.) Loud. syn. *C. libani* Barrel. var. *deodara* Hook. f.; *Pinus deodara* Roxb.

S. & B.–*Devadaru*; H.–*Deodar*; P.–*Dewdar*, *Keli*; Tam.–*Tevadari*; Tel.–*Devadri*.

Wood—diaphor., diur., carmin., useful in fever, flatulence, pulmonary and urinary disorders, rheumatism, piles, gravels in kidney, antid. to snake-bite.

Oil—diaphor., used in skin diseases and for ulcers.

Bark—astrin., useful for fevers, diar. and dysen.

Gum, cholesterin, essen. oil (*Ber. Schimmel u. Co., Lpz.*, 1892, April, 41; 1909, Oct., 130; 1915, April, 54; 1923, 49; *J. chem. Soc.*, 1916, 791); wood yields oil with balsamic odour (*Indian For. Rec.*, 1922, 123); needles contain ascorbic acid (*Chem. Abstr.*, 1944, 2400); fresh needles contain 0·056% of ethereal oil (Wehmer, I, 42).*

North-western Himalayas from Kashmir to Garhwal at 4,000-10,000 ft.

C. libani Barrel. var. **deodara** Hook. f.; see **C. deodara** (Roxb.) Loud.

CEIBA (*Bombacaceae*)

C. pentandra (Linn.) Gaertn. syn. *Eriodendron anfractuosum* DC.

B.–*Schwet simul*; Bo.–*Safedsavara*; S.–*Svetasalmali*; Mal.–*Mulli-lavu*; Tam.–*Ilavum*; Marathi–*Salmali*; Tel.–*Tellaburga*.

Gum—tonic, alter., astrin., laxt., in bowel complaints.

Young leaves—emol.

Roots—diur., in scorpion-sting.

Unripe fruit—astrin., demulc.

Juice from the roots—cure for diabetes.

Seeds resemble cotton seed in composition, but contain little or no gossypol (*Chem. Abstr.*, 1931, 4727); seeds contain 20-25% oil (*Bull. imp. Inst., Lond.*, 1926, 18; Wealth of India, II, 112).

Widely distributed in the forests in the hotter parts of western and southern India.

CELASTRUS (*Celastraceae*)

C. paniculatus Willd.

Bo. & S.–*Kanguni*; H. & B.–*Malkangni*; Mal.–*Palulavam*; Tam.–*Valuluvai*.

Bark—abortif.

Seeds—bitter, laxt., emetic, stim., aphrodis., in rheumatism, leprosy, gout, various fevers, paralysis.

Oil from seeds—in beriberi, powerful stim.

Alk., glucd., colouring matter (*Bull. Inst. bot. Buitenz.*, 1902, 17); seeds yield brownish oil (52·2%) with unpleasant taste (*J. Indian chem. Soc.*, 1936, 353); seed fat and fruit coat fat contain formic, acetic and benzoic acids (*Chem. Abstr.*, 1939, 1975); fleshy arils yield 30% fat (*Proc. Indian Acad. Sci.*, vol. 26A, 1946, 506); seeds gave alk. celastrine, yield 0·0015% and another alk. paniculatine (*J. Amer. pharm. Ass.*, 1946, 272; *Chem. Abstr.*, 1947, 566); stimulant action of celastrine is especially manifest in the brain and is not followed by a secondary depression (U.S.D., 1390).*

Sub-Himalayan tract from the Jhelum eastwards, up to 6,000 ft., throughout the hilly parts of Bombay, south of Gujarat, of Madhya Bharat and Madras State.

C. senegalensis Lam.; see **Gymnosporia spinosa** (Forsk.) Fiori

C. spinosus Royle; see **Gymnosporia royleana** M. Laws.

CELOSIA (*Amaranthaceae*)

C. argentea Linn.

H.–*Sufaid murgha*; B.–*Swet-murga*; Bo.–*Kurdu*; P.–*Sarwali*; S.–*Vitunna*; Tel.–*Gurugu*.

Seeds—in diar., aphrodis.; useful in blood diseases and mouth sores, for clearing the vision and for diseases of the eye (*C.R. Acad Sci., Paris*, 1888, 902).

Common weed in cultivated fields, hedges, river banks and open places throughout India, occasionally ascending up to 5,000 ft. in the Himalayas.

C. argentea var. **cristata** Voss. syn. *C. cristata* Linn.

S.–*Mayurashikha*; H.–*Kokan*; B.–*Lal-murga*; Marathi–*Mayurshikha*; Kash.–*Mawal*; Tel.–*Kodijuttutotakura*.

Flowers—astrin., used in diar. and excessive menstrual discharges.

Seeds—demulc., useful in painful micturition, cough and dysen.

Plant yields betanin, a nitrogen containing anthocyanin; seeds yield a fatty oil (Wehmer, I, 299; Suppl., 44).

Grown in gardens for ornamental purposes or found as an escape in the plains and up to a height of 5,000 ft. on the Himalayas.

C. cristata Linn.; see **C. argentea** var. **cristata** Voss.

CELSIA (*Scrophulariaceae*)

C. coromandeliana Vahl

S.–*Bhutakeshi*, *Kulahala*; B.–*Kukshima*; Bo.–*Kolhal*; H.–*Gadartambaku*, *Kokshima*.

Juice of leaves—sedative, astrin., in diar. and dysen.

Plant juice—prescribed in skin eruptions and fevers.

Throughout India.

CELTIS (*Ulmaceae*)

C. australis Linn.

P.–*Bramji*, *Khark*; Kash.–*Brimij*; Almora–*Khark*.

Fruit—used in amenor. and colic.

Seeds yield a fatty oil (Wehmer, I, 235).

Salt Range, the temperate Himalayas and Khasi Hills ascending to about 8,500 ft. Also cultivated in the plains.

C. cinnamomea Lindl.

Tam.–*Pinari*; Mal.–*Putan*.

Wood—scraped fine and mixed with lemon juice taken internally as a blood purifier in itch and cutaneous eruptions and is used as fumigator and in headache.

Wood contains skatole (*Proc. Indian Sci. Congr.*, 1937, 154).

Sikkim Himalayas, Bengal, Madhya Pradesh and South India.

C. orientalis Linn.; see **Trema orientalis** Blume

C. reticulata Hook. f. & Th.; see **Gironniera reticulata** Thwaites

C. wightii Planch.

Tel.–*Kaka-mushti*; Tam.–*Vakkanai*; Mal.–*Manalli*.

Wood—used in the same way as of *C. cinnamomea*.

Hills of South India, the Andaman Islands and Ceylon.

CENCHRUS (*Gramineae*)

C. barbatus Schum. syn. *C. catharticus* Del.

Bo.–*Baront*; Rajputana–*Bharut*.

In La Reunion a decoct. of fruits taken as diur. and pectoral.

Punjab and Upper Gangetic Plain.

C. catharticus Del.; see **C. barbatus** Schum.

CENTAUREA (*Compositae*)

C. behen Linn.

Ind. Baz.–*Safed bahman*.

Roots—aphrodis., used in jaundice and calculus affections.

Roots contain a bitter crystalline lactone behenin (*Proc. Indian Acad. Sci.*, vol. 19A, 1944, 163; *Chem. Abstr.*, 1945, 1251).

A native of Persia.

C. calcitrapa Linn.

The Arabs apply the bruised leaves to the head in cephalalgia.

In Europe powdered root considered a cure for fistula and gravel, powdered seeds drunk in wine as remedy for stone (*J. Bombay nat. Hist. Soc.*, 1940, 635).

Punjab and Kashmir, ascending to 3,500 ft. and Mysore.

C. cyanus Linn.

Florets—astrin. and soothing in conjunctivitis.

Flowers—tonic, stim., emmen.

Glucd. chichorigenin (*Arch. Pharm., Berl.*, 1876, 327; *Pr. med.*, 1936, 1216; *Chem. Abstr.*, 1937, 4398).

N.W. India in cultivated places and corn fields.

C. picris Pall.

Plant—pounded in water used to cure worms and as cure for wounds of sheep.

Sind, Baluchistan.

CENTAURIUM (*Gentianaceae*)

C. roxburghii (G. Don) Druce syn. *Erythraea roxburghii* G. Don

H.–*Barik charayatah*; B.–*Girmi*; Bo.–*Kurunai, Luntak*; Mal.–*Thuporuppenpullu*.

Plant—bitter, stomch., subst. for chiretta, in fever.

Throughout India, ascending up to 2,000 ft. and common in cultivated ground.

CENTELLA (*Umbelliferae*)

C. asiatica (Linn.) Urban syn. *Hydrocotyle asiatica* Linn.

B.–*Tholkhuri*; Bo.–*Karivana*; H.–*Brahma-manduki*; S.–*Mandukaparni*; Tam.–*Vallarai*; Tel.–*Brahmi*.

Plant—useful alter. and tonic in diseases of skin, leprosy, nerves and blood.

Leaves—taken as tonic and for improving memory, useful in syphilitic skin diseases both internally and externally.

Bitter substance (*J. Pharm., Anvers*, 1855, 47); fresh leaves—a glucd. asiaticoside 0·07-0·12% (*Bull. Sci. pharm.*, 1941, 186; *Chem. Zbl.*, 1943, 1787; *Chem. Abstr.*, 1944, 4094); essen. oil, fatty oil, sitosterol, tannin and resinous substance isolated from herb (*Proc. Indian Acad. Sci.*, vol. 5A, 1937, 109); alk. hydrocotylin isolated from the dried plant, yield 0·0016% (*Quart. J. Pharm.*, 1947, 135; *Chem. Abstr.*, 1948, 1025); asiaticoside shown to be active in treatment of leprosy; asiaticoside and oxy-asiaticoside employed in treatment of certain types of tuberculosis (*Nature, Lond.*, 1945, 601; *Amer. J. Pharm.*, 1949, 434); insecticidal (*Chem. Abstr.*, 1947, 2202); a bitter principle, vellarine, pectic acid and resin present in leaves and roots (Wehmer, II, 871); plant also contains ascorbic acid (*Chem. Abstr.*, 1941, 2223).

Throughout India in marshy places up to 6,000 ft.

CENTIPEDA (*Compositae*)

C. minima (Linn.) A. Br. et Aschers. syn. *C. orbicularis* Lour.

S.–*Chhikika*; H. & Bo.–*Nakkchikni*; B.–*Mechitta*.

Powdered leaves and seeds—induce sneezing and a snuff made from them is used for colds in the head.

Herb—boiled and made into thick paste applied to cheeks to cure toothache.

Infusion of plant—useful in ophthalmia.

Seeds—vermifuge.

Essen. oil, amorph. bitter substance (*Ost. Apotheker. Ver.*, 1878, 489); plant contains an alk., a glycoside, traces of saponin, an essen. oil, the bitter acidic principle myriogynin (*Indian med. Gaz.*, 1930, 75; Wehmer, II, 1253).

Throughout the plains of India in moist places.

C. orbicularis Lour.; see **C. minima** (Linn.) A. Br. et Aschers.

CENTRANTHERA (*Scrophulariaceae*)

C. indica (Linn.) Gamble syn. *C. procumbens* Benth.

Herb—used in fevers and as external application for sore eyes in Ceylon.

Deccan Peninsula and Ceylon.

CENTRATHERUM (*Compositae*)

C. anthelminticum (Willd.) Kuntze syn. *Vernonia anthelmintica* Willd.

B. & H.–*Somraj*; S.–*Somraji*; Bo.–*Kalijiri*; Mal.–*Kattu-jirakam*; Tam.–*Kattu-shiragam*; Tel.–*Adavijilakara*.

Seeds—anthelm., in skin diseases, tonic, stomch., diur., employed for destroying pediculi, in scorpion-sting.

Bitter principle (*J. Soc. chem. Ind., Lond.*, 1910, 1428); active anthelm. principle of achenes isolated in 1% yield as a bitter resin acid; diur., antisep. and stim. effect of the achenes due to 0·02% essen. oil and resins (*Indian J. med. Res.*, 1934, 183); seeds contain bitter resin; 60 and 90%

alcoholic extracts have good anthelm. action against threadworms (*Indian J. Pharm.* 1943, 61; *Chem. Abstr.*, 1944, 1075); they are not effective against hook-worms (*Indian J. med. Res.*, 1923, 366).*

Throughout India up to 5,500 ft. in the Himalayas and Khasia Hills. Often cultivated near villages.

CEPHAELIS (*Rubiaceae*)

C. ipecacuanha (Brot.) A. Rich. syn. *Psychotria ipecacuanha* Stokes

Root—emetic, used in amoebic dysen., expect., diaphor.

Root contains alks. emetine, cephaeline and psychotrine; Indian root contains 1·98% of total alks. and 1·39% emetine (*Indian med. Gaz.*, 1932, 88); besides alks. and glucds. it contains saponins having haemolytic index of 600-9,000 (*Pharm. Ztg, Berl.*, 1936, 528); alks. (*Arch. Biol. S. Paulo*, 1944, 34; *Chem. Abstr.*, 1944, 5641); Brazilian roots contain 2-2·7% of total alks. consisting of emetine 1·35, cephaeline 0·25, psychotrine, 0·04, emetamine 0·002-0·006, o-methyl psychotrine 0·015-0·033% (*Bol. Minist. Agric., Rio de J.*, 1945, 1; *Chem. Abstr.*, 1947, 1812); 3-4 years old plants from Mungpoo gave the highest yield of emetine (*Sci. & Cult.*, 1945, 448; *Chem. Abstr.*, 1946, 6211); roots from Mungpoo 1-5 years old showed maximum total alks. and non-phenolic alks. (*Indian J. Pharm.*, 1946, 78; *Sci. & Cult.*, 1946, 200; *Chem. Abstr.*, 1947, 2538); 5 major alks. have been isolated from the drug; of these emetine and cephaeline more important; besides these small amounts of psychotrine, o-methyl psychotrine, emetamine and traces of ipecamine and hydroipecamine isolated and are relatively unimportant in therapeutic effects (Wealth of India, II, 120).

Cultivated at Mungpoo near Darjeeling and on the Nilgiris specially near Kollar; also at the Rungbee cinchona plantation in Sikkim.

CEPHALANDRA (*Cucurbitaceae*)

C. indica Naud.; see **Coccinia indica** W. & A.

CEPHALOSTACHYUM (*Gramineae*)

C. capitatum Munro

Nep.–*Gobia*; Assam–*Silli*; Lepcha–*Payang*.

In Madagascar infusion of leaves given as tonic, anthelm., stomch., carmin.

Sikkim and Bhutan Himalayas at 2,000-8,000 ft., Khasia, Jaintia and Naga Hills.

CERASTIUM (*Caryophyllaceae*)

C. vulgatum Linn.

Plant—used in Spain as mild refrig.

Throughout the temperate and subalpine regions of India, ascending to 15,000 ft. in Sikkim and W. Tibet.

CERASUS (*Rosaceae*)

C. caproniana DC.; see **Prunus cerasus** Linn.

CERATONIA (*Leguminosae*)

C. siliqua Linn.

P.–*Kharnub*.

Pods—astrin., used in coughs.

Seed husk—purg., astrin.

Seeds yield a fatty oil (*Analyst*, 1928, 411; *Arch. Pharm., Berl.*, 1846, 295; *C. R. Acad. Sci., Paris*, 1900, 623; *Bull. Sci. pharm.*, 1922, 369; *Mh. Chem.*, 1927, 479).*

A native of the E. Mediterranean region. Introduced into India; has become naturalized in the Punjab and a few other regions.

CERATOPHYLLUM (*Ceratophyllaceae*)

C. demersum Linn.

B.–*Sheoyala*; H.–*Sivara*; S.–*Shivala*; Tel.–*Nasu*.

Plant—cooling, antiper., useful in biliousness, in scorpion-sting.

Hairs contain myrophyllin (*Ber. dtsch. bot. Ges.*, 1895, 345).

All over India.

CERATOPTERIS (*Parkeriaceae*)

C. siliquosa (L.) Copel. syn. *C. thalictroides* Brong.

Fronds—used as poultice in skin complaints.

Plant—used in China as tonic and styptic (*J. Bombay nat. Hist. Soc.*, 1935, 353).

Found throughout India, Ceylon and the Malay Peninsula up to 3,000 ft. elevation; common in tanks, ditches, and swampy places, or even dry ground during the rains.

C. thalictroides Brong.; see **C. siliquosa** (L.) Copel.

CERBERA (*Apocynaceae*)

C. manghas Linn. syn. *C. odollam* Gaertn.

B.–*Dabur, Dhakur*; Tam.–*Kattarali*; Mal.–*Utalam*; Marathi–*Sukanu*.

Bark—purg.

Nut—narcotic, poisonous.

Fruit—employed to kill dogs.

Plant—fish poison.

Glucd. cerberin; bitter substance odollin (Wehmer, II, 988); dried kernels contain 43·1% of oil (*J. Indian Inst. Sci.*, 1927, 20; *Arch. Pharm., Berl.*, 1893, 10); kernels yield glucd. cerberin & cerberoside; both have a digitalis like action, the former several times more potent in cats and frogs (*J. Pharmacol.*, 1942, 167; *Chem. Abstr.*, 1943, 499); cerberin behaves as a parasympathomimetic poison (*Indian J. med. Res.*, 1942, 107); glycoside cerbeside, less active than cerberin, also present (*Chem. Abstr.*, 1942, 499); poisonous glycoside thevetin said to be present in the latex, however, the milky juice of the leaves and bark contains no poisonous constituents (*Philipp. J. Sci.*, 1947, 141; Wehmer, II, 988).

Tidal forests and salt-swamps on the sea-coast of India.

C. odollam Gaertn.; see **C. manghas** Linn.

C. thevetia Linn.; see **Thevetia peruviana** Schum.

CEREUS (*Cactaceae*)

C. grandiflorus Mill.

Fresh young shoots—used as cardiac stim. and as partial subst. for digitalis.

Liquid extract or tincture used in cases of dropsy and various cardiac affections; there is, however, no proof of its therapeutic value (B.P.C., 1934, 302).

Introduced into Indian gardens.

CERIOPS (*Rhizophoraceae*)

C. candolleana Arn.; see **C. tagal** (Perr.) C.B. Robins.

C. tagal (Perr.) C.B. Robins. syn. *C. candolleana* Arn.
B.–*Goran*; Tam.–*Pandikutti*.
Plant—astrin.
Decoct. of bark—haemostatic.
Decoct. of shoot—used as subst. for quinine on African Coast.

Tannin (*J. Soc. chem. Ind., Lond.*, 1917, 188; Wealth of India, II, 124).

Muddy shores and tidal creeks of India.

CEROPEGIA (*Asclepiadaceae*)

C. bulbosa Roxb.
H.–*Khapparkadu*; Bo.–*Patalatumbari*; P.–*Galot*; Tel.–*Palatige*.
Tuberous roots—tonic, digest.

Alk. ceropegine is the bitter principle of the root (Dymock, Warden & Hooper, II, 457).

Punjab, Upper Gangetic Plain, Konkan, S. Kanara, Malabar, Deccan and Carnatic.

C. tuberosa Roxb.
H.–*Patalatumbi*; Bo.–*Khapparkadu*; Tel.–*Bachalimanda*; S.–*Bhutumbi*.

Tubers—tonic in the bowel complaints of children, cure for dysen. and diar.

Konkan, Deccan, S. Mahrata Country and N. Circars.

CETERACH (*Asplenieae*)

C. officinarum Willd.; see **Hemidictyum ceterach** Linn.

CHAMAEROPS (*Palmae*)

C. ritchieana Griff.; see **Nannorhops ritchieana** H. Wendl.

CHAMPEREIA (*Opiliaceae*)

C. griffithii Hook. f.

Leaves and roots—used as poultice for ulcers.

Andaman Islands, Burma and Malaya.

CHASALIA (*Rubiaceae*)

C. chartacea Craib = **C. curviflora** Thw. syn. *Psychotria curviflora* Wall.
M.–*Vellakurinji*.

Decoct. of the root—used in rheumatism, pneumonia, head disorders, ear and eye diseases and sore throat.

Roots and leaves—used in external applications for wounds, ulcers and headache.

Eastern tropical Himalayas, Sikkim 2,000-6,000 ft.; Assam, Cachar, Khasia Hills., ascending to 5,000 ft.; W. Peninsula, the Ghats from Bombay southwards; Andaman Islands.

CHEILANTHES (*Polypodiaceae*)

C. tenuifolia Swartz
Santh.–*Dodhari*.

The Santals prescribe a preparation from the roots for sickness attributed to witchcraft or the evil eye.

Madras State up to 4,000 ft., Bengal, plains of Assam, Chittagong, Dacca, Chota Nagpur, Khasia up to 3,500 ft. and Sikkim.

CHEIRANTHUS (*Cruciferae*)

C. cheiri Linn.
H.–*Todrisurkh*; B.–*Khueri*; P.–*Todrisurukh*.

Seeds—tonic, diur., expect., stomch., aphrodis., in dry broncht., fevers and injuries to the eyes.

Flowers—cardiac, emmen., used in paralysis and impotence.

Dried petals—arom., stim.

Alk. cheirinine, glucd. cheirolin, cheiranthin (*Arch. exp. Path. Pharmak.*, 1898, 302); essen. oil (*Ber. Schimmel* *u. Co., Lpz.*, 1911, Oct., 47; *Chemikerztg.*, 1911, 667; 1908, 76; *Liebigs Ann.*, 1910, 207; *J. chem. Soc.*, 1896, 1566; *Arch. Pharm., Berl.*, 1932, 81); seeds yield 20% fixed oil (*Chem. Abstr.*, 1930, 4761); the drug may show quinine like properties in addition to producing an effect similar to digitalis (*Dtsch. Heilpfl.*, 1944, 12; *Chem. Abstr.*, 1946, 6756); flowers yield 0·06% essen. oil; 2 substances cheiranthin and cheirinine isolated from the leaves; cheiranthin is a glycoside with digitalis-like action; cheirinine resembles quinine in pharmacological action; cheirolin and a highly active cardiac glycoside, cheirotoxin, isolated from the seeds (Thorpe, II, 527; U.S.D., 1395; Wealth of India, II, 127).*

A native of southern Europe; cultivated in Indian gardens.

CHENOPODIUM (*Chenopodiaceae*)

C. album Linn.

S.–*Vastuk*; B.–*Chandan betu, Bethu sag*; Bo.–*Chakwit*; P.–*Bathu*; H.–*Bethu sag*; Tam.–*Parupukkirai*; Tel.–*Pappukura.*

Plant—laxt., anthelm.

Essen. oil (*Arch. Pharm., Berl.*, 1893, 641, 648); contains carotene and vitamin C (Wehmer, I, 283; *Chem. Abstr.*, 1941, 7650; 1945, 1695).*

Occurring chiefly in cultivated ground, also cultivated as a pot-herb.

C. ambrosioides Linn.

Mal.–*Katu ayamoddakam.*

Plant—anthelm.

Essen. oil (*Ber. Schimmel u. Co., Lpz.*, 1891, April, 49; 1920, 59; 1921, 15; 1922, 17); root contains saponin (*Pharm. Pr.*, 1934, 39; *Chem. Zbl.*, 1934, II, 3389); drugs collected before budding, with buds but not blooming, blooming, and with mature fruits contain 0·49, 0·6, 0·71 & 0·17 per cent essen. oil having 50·83, 50·53, 47·55 & 15·50 per cent ascaridol respectively (*Acta polon. pharm.*, 1937, 1; *Chem. Zbl.*, 1938, 722; *Chem. Abstr.*, 1940, 4229; *Indian med. Gaz.*, 1943, 234); active principles are toxic to frog, mice and guinea-pigs (*Boll. Soc. ital. Biol. sper.*, 1936, 747; *Chem. Abstr.*, 1937, 2686); oil good against hookworm infections (*Indian med. Gaz.*, 1934, 500; 1940, 652; *J. chem. Soc.*, 1921, 1714); all parts of the plant specially the root contains saponin (*Chem. Abstr.*, 1934, 6937); contains vitamin C and magnesium phosphate (*Chem. Abstr.*, 1943, 192; 1948, 4277); yield of oil from the Indian plant 0·17% (*J. chem. Soc.*, 1921, 1714; Chopra, 92); Indian oil has ascaridol content of 40-45% (I.P.L., 85).

Bengal, Sylhet and South India.

C. botrys Linn.

English—*Jerusalem Oak.*

Plant—anthelm., substitute for *C. ambrosioides*; used in France for catarrh and humoral asthma.

Fresh plant yields 0·03-0·04% essen. oil; ascaridol not present (*Ber. Schimmel u. Co., Lpz.*, 1934, II; *Chem. Abstr.*, 1934, 3179; 1937, 4147).

Himalayas from Kashmir to Sikkim, 4,000-14,000 ft.

CHIONACHNE (*Gramineae*)

C. koenigii (Spreng.) Thw. syn. *Polytoca barbata* Stapf

B.–*Gurgur*; Bo.–*Kanta-karvel*; H.–*Kansa*; S.–*Kanda*; Tel.–*Gela gaddi.*

Plant—laxt., aphrodis., useful in burning sensations, strangury, phthisis, vesical calculi, diseases of blood, biliousness, haemorrhagic diathesis.

More or less throughout India in hot and damp parts.

CHIRONIA (*Gentianaceae*)

C. centaurioides Roxb.; see **Erythraea roxburghii** G. Don

CHLORANTHUS (*Chloranthaceae*)

C. brachystachys Blume; see **C. glaber** (Thunb.) Makino

C. glaber (Thunb.) Makino syn. *C. brachystachys* Blume

Plant—good stim.

Khasia Hills and Travancore.

C. officinalis Blume

Plant—considered a potent stim. in the Philippine Islands and Malay Archipelago.

Leaves and roots—sudorific, useful for fevers.

E. Himalayas, Assam and Andaman Islands.

CHLORIS (*Gramineae*)

C. virgata Sw.

Rajputana–*Gharaniagas.*

Decoct. of plant or roots used by the Xosas of S. Africa as an addition to baths for the treatment of colds and rheumatism.

Rajputana, Upper and Lower Gangetic Plains, southwards to Bihar, Central and S. India.

CHLOROPHORA (*Moraceae*)

C. excelsa Benth. & Hook. f.

Milky juice—applied for itch.

Bark—used in Africa as an ingredient of applications for swellings.

A native of tropical America and Africa. Recently introduced into India and grown in Bengal, Madras, Bombay and Andaman Islands.

CHLOROPHYTUM (*Liliaceae*)

C. arundinaceum Baker

H.–*Safed-musli*.

Root—tonic.

E. Himalayas, Assam and Bihar.

CHLOROXYLON (*Rutaceae*)

C. swietenia DC.

H.–*Bhirra*; Bo.–*Bheria*; Tam.–*Porasu*; Tel.–*Billu*; Mysore–*Huragalu*.

Bark—astrin.

Leaves—applied to wounds and prescribed in rheumatism.

Plant—irrit.

Alk. chloroxylonine, chloroxyline (*J. chem. Soc.*, 1909, 964; *Bull. imp. Inst., Lond.*, 1909, 93; *Meded. PlTuin, Batavia*, 1899, 105, 131; *Brit. med. J.*, 1911, 784); chloroxylonine a powerful irrit. (*Bull. imp. Inst., Lond.*, 1911, 351); bark 0·05% alk. identical with skimmianine, identified as chloroxylonine, and a non-basic bitter constituent (*J. Indian chem. Soc.*, 1946, 1; *Chem. Abstr.*, 1946, 5750); seeds yield 16% of a non-drying oil (*Indian For. Rec.*, 1922, 97); bark contains 17% tannin (*Indian For. Leafl.*, No. 72, 1944, 7); wood yields an essen. oil (*J. sci. industr. Res.*, 1948, suppl., 129).

Dry deciduous forests in the Indian Peninsula, extending in the north to the Satpuras and Chota Nagpur.

CHONDRUS (*Gigartinaceae*)

C. crispus Stackh.

Stim., sudorific; specific for intestinal and bronchial ailments.

Shores of the North Atlantic and other shores.

CHROZOPHORA (*Euphorbiaceae*)

C. plicata A. Juss.; see **C. prostrata** Dalz.

C. prostrata Dalz.

H.–*Shadevi, Subali*; B.–*Khudiokra*; P.–*Nilakrai, Nilkanthi*; S.–*Suryavarta*; Tel.–*Lingamiriyam*.

Ashes of root—given to children for cough.

Leaves—considered depurative.

Seeds—used as purg.

Punjab, Upper Gangetic Plain, Bihar, Gujarat, Konkan, Deccan, N. Kanara, Sind, Central and S. India.

C. rottleri A. Juss. ex Spreng. syn. *C. tinctoria* Hook. f.

H.–*Shadevi*; *Subali*; P.–*Kukronda*; S.–*Suryavarta*.

Plant—emetic, poisonous.

Seeds—cath. (*J. Bombay nat. Hist. Soc.*, 1938, 276).

S., W., Central and N. India.

C. tinctoria Hook. f.; see **C. rottleri** A. Juss.

CHRYSANTHELLUM (*Compositae*)

C. indicum DC.

Bruised leaves—rubbed over aching heads.

Upper Gangetic Plain, Kumaon and Garhwal, Hawalbagh and Nainital up to 4,000 ft. and Nagpur.

CHRYSANTHEMUM (*Compositae*)

C. cinerariaefolium Vis.

Flowers—toxic, insecticidal.

Flowers contain pyrethrin I and pyrethrin II (*J. Amer. chem. Soc.*, 1929, 3054; 1930, 3300; 1930, 684); pyrethrum grown in India showed a high content of pyrethrin, one sample 0·247, one sample 0·491 & 12 samples 0·702-1·30% (*J. Amer. pharm. Ass.*, 1941, 72; *Chem. Abstr.*, 1941, 3768); pyrethrum content of flowers from different alt. of Kashmir (*Curr. Sci.*, 1945, 104); Nilgiri flowers gave β-carotene 0·69 μg., and total carotenoids 4·7 μg./g. (*J. sci. industr. Res.*, 1947, 100B); flowers contain 0·4-2·0% of pyrethrins (pyrethirn I and pyrethrin II); they also contain chrysanthin, palmitic and linoleic acids and a small amount of volatile oil (I.P.C., 214).

Cultivated in Kashmir, Nilgiris, N.W. Himalayas and some other places in India.

C. coccineum Willd.

Flowers—insecticidal, less active than *C. cinerariaefolium*.

Concentration of active principles in the open flower heads of plants grown in Murree Hills 0·25% (Wealth of India, II, 148).

Cultivated to a limited extent in Assam.

C. coronarium Linn.

Dec.–*Gulchini*; B. & H.–*Guldaudi*; Bo.–*Seoti*; S.–*Shevantika*; Tam.–*Shamantippu*; Tel.–*Chamanti*; P.–*Bagaur*.

Plant—in conjunction with black pepper given in gonor.

Flowers—used as a subst. for Chamomile, an arom. bitter and stomch.

Bark—purg., used in syphilis.

Adenine, chlonine, (*Hoppe-Seyl. Z.*, 1913, 334).

Planted in Indian gardens for its ornamental flowers.

C. indicum Linn.

H.–*Guldaudi*; Bo.–*Akurkura*; S.–*Sevanti*; Marathi–*Shevati*; Tam.–*Akkarakkaram*; Tel.–*Chamunti*.

Flowers—bitter, stomch., aper.

Plant—in conjunction with black pepper given in gonor.

Leaves—used as a depurant in China, and prescribed in migraine.

Essen. oil, glucd. chrysanthemin (*Bull. Soc. chim., Fr.*, 1900, 216; *Liebigs Ann.*, 1916, 136; *Ber. dtsch. chem. Ges.*, 1928, 2503); seeds contain 15·8% of a semi-drying oil (*Proc. Indian Acad. Sci.*, vol. 15A, 1942, 123; *Chem. Abstr.*, 1940, 6767).*

Grown in Indian gardens for its ornamental multi-coloured flowers.

CHRYSOBALANUS (*Rosaceae*)

C. icaco Linn.

Bark, root and leaves—astrin.

Fruit—used for diar. and other bowel complaints.

Seeds contain fatty oil (*Philipp. Agric.*, 1933, 408; Wehmer, I, 483).

A naitve of the coastal regions of tropical and sub-tropical America and West Africa, introduced into Ceylon and some parts of Malabar.

CHRYSOPOGON (*Gramineae*)

C. montanus Trin. syn. *C. serrulatus* Trin.

Quetta–*Kohigayab*; H.–*Goria*; Bo.–*Agiva*; Tel.–*Gogada gaddi*.

Seeds—a popular vermifuge in Annam.

W. Himalayas, from Kashmir to Nepal, ascending to 6,000 ft.; hilly districts from Punjab to Bihar, Orissa and southwards to Ceylon.

C. serrulatus Trin.; see **C. montanus** Trin.

CHUKRASIA (*Meliaceae*)

C. tabularis A. Juss.

B.–*Chikrassi*; Bo.–*Pabha*; Tam.–*Agil*; Mal.–*Akil*; Assam–*Boga-poma*.

Bark—astrin.

Young leaves and bark contain 22% and 15% tannin respectively. (*Indian For. Leafl.*, No. 72, 1944, 7).

Hill forests of Sikkim and Chittagong, W. Peninsula along the W. Ghats from Bombay to Tinnevelly, Sandur Hills of the Deccan and Andamans.

CIBOTIUM (*Polypodiaceae*)

C. barometz J. Smith

In China root used as tonic and given for lumbago.

In Annam rhizome used as vermifuge and stems considered tonic and styptic.

Mishmi Hills of Assam.

CICCA (*Euphorbiaceae*)

C. acida (Linn.) Merrill = Phyllanthus **acidus** Skeels syn. *C. disticha* Linn.; *Phyllanthus distichus* Muell. Arg.

B.–*Hariphal, Noari*; Bo.–*Harparawari*; H.–*Harfarauri*; S.–*Lavaliphala, Lavani*; Tam. & Mal.–*Aranelli*.

Fruit—astrin.

Root and seed—cath.

Leaves and roots—used as antid. to viper venom.

Root bark contains tannin 18%, saponin, gallic acid and a crystalline substance (*Pharm. Weekbl.*, 1908, 1156; *Indian For. Leafl.*, No. 72, 1944, 7; Wehmer II, 670).

Frequently cultivated in home yards and gardens in India, chiefly for its fruit.

C. disticha Linn.; see **Cicca acida** (Linn.) Merrill

CICER (*Leguminosae*)

C. arietinum Linn.

H. & Bo.–*Chana*; B. & P.–*Chola*; Tam.–*Kadalai*; Tel.–*Sanagalu*; S.–*Chanaka*.

Acid exudation—astrin., used in dyspep., constip. and snake-bite.

Oxalic, acetic, malic and another acid, As—0·009 mg. in 100 g. seeds (*Gazz. chim. ital.*, 1909, 1608; *C.R. Acad. Sci., Paris*, 1912, 893; Dymock, Warden & Hooper, I, 488); arginine, tyrosine, lycine, cystine, tryptophane (*J. Indian Inst. Sci.*, 1930, 153A); contains carotenoids and the oil-soluble vitamins A, D and E (*Trans. Bose Res. Inst.*, 1933-34, 89); analysis of gram (*Hlth Bull.*, No. 23, 1941, 28); lecithin, phytin, saponin present in whole gram (*Sci. & Cult.*, 1943-44, 165); gram seeds contain higher % of oil (4-5%) than other pulses (*J. sci. industr. Res.*, 1950, 60B); three crystalline products biochanin A, biochanin B, biochanin C, isolated from fresh whole germ of sprouting gram (Wealth of India, II, 159).

Largely cultivated in most parts of India.

CICHORIUM (*Compositae*)

C. endivia Linn.

B.–*Kassin*; Bo. & H.–*Kasini*; Tam.–*Kashini*.

Plant—used as resolv., cooling medicine and in bilious complaints.

Root—tonic, demulc. in dyspep. and fever.

Fruit—cooling, in fever, headache, bilious complaints and jaundice.

A bitter substance (*Mh. Chem.*, 1926, 694).

Cultivated in India.

C. intybus Linn.

H., B. & Bo.–*Kasni*; Tam.–*Kashni*; Tel.–*Kasini*.

Cultivated plant—used as tonic, in fevers, vomiting, diar. and enlargement of the spleen and its root as a stomch. and diur.

Wild form of the plant—considered tonic, emmen. and alexiteric.

Glucd. cichoriin, bitter substances lactucin, intybin, As—0·01 mg. in 100 g. root (*Chem. Zbl.*, 1912, I, 1730; *Arch. Pharm., Berl.*, 1876, 327; 1932, 476; *Mh. Chem.*, 1926, 695; *Arch. Hyg., Berl.*, 1913, 210; *J. Indian chem. Soc.*, 1937, 141).*

Wild in Punjab, N.W. Frontier Province and Hyderabad (Dn.). Cultivated in Nadiad, Broach and Amalsad in Bombay.

C. noeanum Boiss.

Flowers—soaked in water and the water used for sore legs and the stomach derangement called 'dik'.

Baluchistan.

CICUTA (*Umbelliferae*)

C. virosa Linn.

Herb—poisonous.

Toxic substance cicutoxin, cicutoxinin; seeds contain essen. oil (*Arch. Pharm., Berl.*, 1893, 212; *Arch. exp. Path. Pharmak.*, 1894, 258); root—poisonous; two out of 6 poisoning cases proved fatal (*Sovetsk. vrach. Zh.*, 1937, 138; *Chem. Zbl.*, 1939, 2030; *Chem. Abstr.*, 1940, 7418); active principle cicutoxin is a spasmodic with high toxicity to the central nervous system and a pronounced pressor effect; it causes respiratory paralysis and death (*Farmakol. i. Toksikol.*, 1944, 57; *Chem. Abstr.*, 1946, 5154).

In marshes and ditches round Srinagar in Kashmir at 5,200 ft.

CIMICIFUGA (*Ranunculaceae*)

C. foetida Linn.

P.–*Jiunti*.

In Europe root considered a mild emeto-purg., in China and Indo-China used as antiper. and sudorific and used in rheum. affections, dropsy and chr. bronchial diseases.

Plant—insect repellent (*Indian J. agric. Sci.*, 1940, 16).

Temperate Himalayas, from Kashmir to Bhutan 7,000-12,000 ft.

CINCHONA (*Rubiaceae*)

C. calisaya Wedd.

Bark—source of quinine, specific for malaria (*Pharm. Post*, 1906, 345; *Pharm. Weekbl.*, 1913, 1464; *Pharm. J.*, 1864, 16; 1920, 22).

Cultivated in India, succeeds at elevations of from 1,500-3,000 ft. in Sikkim and the Moyar valley in the Nilgiris.

C. calisaya Wedd. var. **legeriana** Howard; see **C. ledgeriana** Moens ex Trimen

C. ledgeriana Moens ex Trimen

Bark—source of quinine, specific for malaria.

Major alk. quinine (*Liebigs Ann.*, 1881, 288; *Bull. imp. Inst., Lond.*, 1920, 22); plants after 5 years contain total alks. in roots 5·14%, trunks 6·04 %, branches 0·08%, and quinine sulphate in roots 2·73%, trunks 3·52% and branches 0·85% (*Rass. econ. colonie, Italy*, 1936, 200; *Chem. Abstr.*, 1936, 6507); upper young leaves are richer in alk. than the older; in stem alk. content increases downwards (*Soviet Plant Ind. Rec.*, 1940, 151; *Chem. Abstr.*, 1941, 4548); cinchona from Darjeeling district, Bengal, showed maximum total alk. 7·43% (7 years), quinine 4·53% (12 years), and cinchonidine 1·11% (6 years) calculated on the dry weight of bark (*Indian J. Pharm.*, 1946, 85; *Chem. Abstr.*, 1947, 2538); bark contains 9·1% total alks., quinine 7·92%, cinchonidine 0·105, quinidine 0.08, cinchonine 0·085, amorph. alks. 0·91% (*J. For.*, 1947, 500; *Chem. Abstr.*, 1948, 325).

Cultivated in the Government of Bengal plantations, on the Anamalai hills and in Tinnevelly district in S. India and the Khasia and Jaintia Hills.

C. officinalis Linn. f.

Bark—source of quinine, specific for malaria.

Major alk. quinine (*Pharm. J.*, 1888, 288; *Ber. dtsch. chem. Ges.*, 1873, 1129; 1881, 1890).

Cultivated in S. India, thrives at higher elevations of 6,000-8,500 ft. of Ootacamund in the Nilgiris.

C. robusta How.

Bark—source of quinine, specific for malaria (*Pharm. Weekbl.*, 1917, 1925; *Bull. imp. Inst., Lond.*, 1928, 17).

Grown at Naduvattam in Madras at an altitude of 3,500-6,000 ft.

C. succirubra Pavon ex Klotzsch

Bark—source of quinine, specific for malaria.

Major alk. cinchonine (*Pharm. J.*, 1873, 121; 1878, 324; 1883, 897; *J. Pharm.*

Chim., Paris, 1879, 330; *Pharm. Post*, 1905, 345); plants of 5 years growth contain total alks. in roots 7·13%, trunks 8·20%, branches 6·0%, and quinine sulphate in roots 1·40%, trunks 2·98% and branches 1·89% (*Rass. econ. colonie, Italy*, 1936, 200; *Chem. Abstr.*, 1936, 6507); leaves contain same alks. in same proportion as bark (*Zh. prikl. Khim., Mosk.*, 1937, 1586; *Chem. Abstr.*, 1938, 1866); upper young leaves richer in alk. content than older; in stem alk. content increases downwards (*Soviet Plant Ind. Rec.*, 1940, 151; *Chem. Abstr.*, 1941, 4548).

Cultivated in the Nilgiris and Naduvattam plantations in S. India at altitude of 3,000-6,000 ft., Sikkim, and in parts of Satpura Range in Madhya Bharat.

CINNAMOMUM (*Lauraceae*)

C. aromaticum Nees; see **C. cassia** Blume

C. camphora Nees & Eberm.

S.–*Karpura*; Tam.–*Indu, Karppuram*; Tel.–*Karpuramu.*

Plant—considered sedative, anodyne, antisp., diaphor., anthelm., stim., carmin., used in insecticidal preparations.

Essen. oil (*J. Soc. chem. Ind., Lond.*, 1920, 296); leaves—camphor 0·73%, campherol 0·97% (*J. Soc. chem. Ind., Lond.*, 1931, 195; *Chem. Zbl.*, 1931, II, 1068; *Ber. Schimmel u. Co., Lpz.*, 1906, Oct., 40; 1907, April, 64; 1918, 14; 1932, 9; *Bull. imp. Inst., Lond.*, 1928, 294; *E. Afr. agric. J.*, 1946, 148; *Indian For. Rec.*, 1923, 9, 2; *Chem. Abstr.*, 1929, 1723; 1938, 3904; 1937, 4518; *Bull. Indian industr. Res.*, 1943, No. 10, 75).

Planted in some gardens in India up to 4,000 ft. in the N.W. Himalayas. Successfully cultivated at Dehra Dun, Saharanpur, Calcutta, Nilgiris and Mysore.

C. cassia Blume syn. *C. aromaticum* Nees

Arab.–*Salikha*; Urdu–*Taj.*

Bark—tonic, stomch., carmin., subst. for Ceylon cinnamon.

Essen. oil (*Ber. Schimmel u. Co., Lpz.*, 1892, Oct., 12; 1896, Oct., 11; 1910, April, 27; *J. Amer. pharm. Ass.*, 1923, 294).

Burma (Ava), and China, introduced into Ceylon.

C. glanduliferum Meissn.

Assam–*Gunserai*; Nep.–*Malligiri.*

Wood—contains d-camphor and is a good subst. for Sassafras.

Essen. oil (*Ber. Schimmel u. Co., Lpz.*, 1923, 145; *Bull. Sci. pharm.*, 1919, 204; Finnemore, 316); seed kernels contain a fat (*Chem. Abstr.*, 1943, 6915).

Central Himalayas, Khasia Hills.

C. impressinervium Meissn.

Bark—used in the same way as of *C. tamala.*

Sikkim Himalayas at 4,000-6,000 ft.

C. iners Reinw.

Bo.–*Tikhi*; H.–*Jangli darchini*; Tam.–*Kattukkaruvappattai*; Tel.–*Adavilavangapatta*; Marathi–*Ranachadalchini.*

Seeds—bruised and mixed with honey given to children in dysen. and coughs.

Bark contains 0·5% essen. oil (*Pharm. J.*, 1912, 145; Wehmer, I, 362).

A tree of southern Tenasserim reported to occur in the evergreen forests of Western Ghats from Mysore and Coorg to the Anamalais and Travancore, Karnatic and Shevroy and Kollimalai hills. It is probably a variety of *C. zeylanicum.*

C. javanicum Blume

In Malay Archipelago bark used as subst. for Ceylon cinnamon.

Malay Peninsula, Java and Borneo.

C. macrocarpum Hook. f.

S.–*Tejapatra*; Tam.–*Karuva*; Tel.–*Lavanga.*

Oil from root bark and leaves—used in rheum. affections externally.

N. Kanara, Western Ghats and Nilgiris.

C. obtusifolium Nees

B.–*Tezpat*; Nep.–*Barasingoli*; Assam–*Patichanda*; Kumaon–*Phalgoli.*

Bark—used in dyspep., and liver complaints in Nepal.

Central and outer eastern Himalayas, up to 7,000 ft., East Bengal, Assam, and Andaman Islands.

C. parthenoxylon Meissn.

Malay–*Kayo-gadis*; Burm.–*Kaaway.*

Oil of fruit—in rheum. affections.

Infusion of root—subst. for Sassafras.

Essen. oil (*Ber. Schimmel u. Co., Lpz.*, 1912, April, 39; *Bull. imp. Inst., Lond.*, 1925, 421).

Malay Peninsula, Sumatra, Java and China.

C. pauciflorum Nees

Khasia–*Dinglatterdop.*

In Philippine Islands bark used as stomch., cardiotonic and antisep.

Sikkim Himalayas and Assam.

C. tamala Nees & Eberm.

S.–*Tamalaka*; Bo.–*Darchini*; B. & H.–*Tejput*; Tam.–*Talishappattiri*; Tel.–*Talisapatri.*

Bark—arom., in gonor.

Leaves—stim., carmin., used in rheumatism, colic, diar., and in scorpion-sting.

Essen. oil (*Ber. Schimmel u. Co., Lpz.*, 1910, April, 124); leaves yield an essen. oil which resembles cinnamon leaf oil and contains d-α-phellandrene and 78% eugenol (Finnemore, 320); essen. oil from bark contains 70-85% cinnamic aldehyde (Chopra, 120).

Tropical and subtropical Himalayas, 3,000-7,800 ft., Sylhet and Khasia Hills, 3,000-4,000 ft.

C. zeylanicum Blume

S.–*Tamalapatra*; B., Bo. & H.–*Dalchini*; Tam.–*Ilayangam*; Tel.–*Lavanagamu*.

Bark—arom., astrin., stim., carmin., useful for checking nausea and vomiting.

Essen. oil (*Ber. Schimmel u. Co., Lpz.*, 1916, 98; *Chem. & Drugg.*, 1926, 667; *Bull. imp. Inst., Lond.*, 1918, 146; 1919, 189; 1921, 319); dry bark from small stems & twigs contain 0·35-0·71% essen. oil having 48-76% aldehydes (*Perfum. essent. Oil Rec.*, 1936, 6; *Chem. Abstr.*, 1936, 6129; *Schimmel Rep.*, 1946, 10); essen. oil 2·0% containing 70-90% eugenol, a source of clove oil *J. sci. industr. Res.*, 1946, 464; *Chem. Abstr.*, 1948, 6059); bark contains 0·5-1·0% oil; green leaves yield about 1% oil; cinnamon leaf oil equals clove oil in eugenol content (70-95%); root bark yields 3% oil which differs from both stem bark and leaf oils (Wealth of India, II, 181-183).

Wild in the southern coastal regions of western India up to an altitude of 6,000 ft. Abundant in the regions of 100-700 ft. above sea level, and is fairly common up to 3,500 ft.

Cultivated in South India.

CIRSIUM (*Compositae*)

C. arvense (Linn.) Scop. syn. *Cnicus arvensis* Hoffm.

Plant—emetic, tonic, diaphor.

Glucd., essen. oil, alk. (*Chemikerztg*, 1890, 126; *Amer. J. Pharm.*, 1896, 529); seeds contain 21·9% fatty oil (Wehmer, Suppl., 50); plant contains a volatile alk. and cnicin, a crystalline bitter glycoside, possessing emetic and emmen. properties (U.S.D., 1629).

Bengal and Gangetic Plains, from the Sundarbans north-westwards to Punjab, western Himalayas from Kashmir to Kumaon.

C. sinense C.B. Clarke syn. *Cnicus sinensis* Gardner & Champ.

Roots—used internally for flatulence and externally for ulcers and abscesses.

Stems and leaves—antiscor. (*J. Bombay nat. Hist. Soc.*, 1940, 641).

Marshy areas on the Khasia Hills.

CISSAMPELOS (*Menispermaceae*)

C. pareira Linn.

S.–*Ambashtha*, *Patha*; H. & B.–*Akanadi*; Mal.–*Kattuvalli*; Marathi–*Paharvel*; Tam.–*Appatta*; Tel.–*Adivi bankatige*.

Root—bitter, antiper., diur., purg., stomch., in dyspep., diar., dropsy, cough and urinary troubles like cystitis, in snake-bite.

Leaves—external application for itch.

Alks., sepeerine, bebeerine, cissampeline (*Amer. J. Pharm.*, 1870, 430; *Pharm. J.*, 1844, 284); pelosine or bebeerine (0·5%) present in the roots; besides the alk. plant extract contains saponin and abundance of quaternary ammonium bases (Henry, 1949, 363; Wehmer I, 330; *Chem. Abstr.*, 1936, 4929, 6508); alks. hyatin, hyatinin, and a quercitol and a sterol isolated from the roots (*J. sci. industr. Res.*, 1952, 81B); hyatin methodide (and methochloride) possess almost equal degree of curariform activity as of d-tubocurarine (*Curr. Sci.*, 1952, 172).*

Throughout tropical and subtropical India.

CISSUS (*Vitaceae*)

C. adnata Roxb. syn. *Vitis adnata* Wall.

Bo.–*Kole-zan*; Marathi–*Nadena*; Tel.–*Kokkitayaralu*.

Decoct. of tubers—diur., alter. and blood purifying.

Root—powdered and heated applied to cuts and fractures.

Hotter parts of India, from the western Himalayas in Garhwal to Assam, Sylhet, Bengal, Western Peninsula.

C. pallida Planch. syn. *Vitis pallida* W. & A.

Kan.–*Kondage*; Tel.–*Nallatige*; Uriya–*Takuanoi*.

Bruised roots—applied for rheum. swellings.

Garhwal and Western Ghats.

C. quadrangularis Linn. syn. *Vitis quadrangularis* Wall.

S.–*Asthisanhara*; B.–*Horjora*; Bo.–*Harsankar*; H.–*Hadjora*; Mal.–*Piranta*; Tel.–*Nalleru*; Tam.–*Pirandai*.

Leaves and young shoots—alter., stomch., used in powder form in digestive troubles.

Juice of stem—used in irregular menstruation and scurvy.

Stem—given internally and applied topically for fracture of bones; beaten into a paste given for asthma.

Contains calcium oxalate, carotene 267 mg. per 100 g. fresh plant, ascorbic acid 398 mg. per 100 g. tender stem parts, 232 mg. in fibrous bottom portions of the stems and 479 mg. in freshly expressed sap (*Proc. Indian Acad. Sci.*, vol. 9A, 1939, 121; *Chem. Abstr.*, 1939, 5406).

Throughout the hotter parts of India.

C. repens Lam. syn. *Vitis repens* W. & A.

Mal.–Mrigampuli; Nep.–*Pureni*; Tel.–*Nelaboddu*; Assam–*Mei-hur-jarap.*

Plant—applied to sloughing and foetid ulcerations, also to boils and small abscesses as maturant.

E. tropical Himalayas, Assam, Chittagong, W. Peninsula.

C. setosa Roxb. syn. *Vitis setosa* Wall.

H.–*Harmal*; Marathi–*Khajgolichavel*; M.–*Pulippirandai*; Tel.–*Pullabachali.*

Leaves—stim., used in indolent tumours and applied externally to assist in the extraction of guinea worms.

Deccan, Carnatic, slopes of the W. Ghats of the Madras State.

CISTANCHE (*Orobanchaceae*)

C. tubulosa Wight syn. *Phelipaea calotropidis* Walp.

Kalat–*Kasi.*

Plant—used in sores, given in curd to stop diar. (Stewart).

Punjab, Sind and Baluchistan.

CITRULLUS (*Cucurbitaceae*)

C. colocynthis Schrad.

S.–*Mahendra-varuni*; H., B. & Bo.–*Indrayan*; B.–*Makhal*; Tam.–*Peyttummatti*; Tel.–*Etipuchchha*; Mal.–*Peykommutti.*

Fruit and seed—purg.

Root—purg., used in ascites, jaundice, urinary diseases and rheumatism.

Fruit and root—antid., to snake-poison.

Bitter substance, colocynthin, colocynthetin (*Amer. J. Pharm.*, 1893, 179; *Pharm. J.*, 1907, 117; *Arch. Pharm., Berl.*, 1883, 201; *J. chem. Soc.*, 1910, 99; *Indian J. med. Res.*, 1929, 770); roots contain α-elaterin, hentriacontane, and saponins (*Curr. Sci.*, 1934, 350); seeds contain fixed oil, a phytosterolin, 2 phytosterols, 2 hydrocarbons, a saponin, alk., glycoside, tannin. (*J. Indian chem. Soc.*, 1949, 515, 519); pulp contains α-elaterin, hentriacontane, a phytosterol and a mixture of fatty acids (B.P.C., 1934, 348).

Occurs wild throughout India particularly in the North-west, Central and South India and on the sea shores of the Coromandal coast, Gujarat, and other parts of Western India. It is nowhere cultivated except perhaps on an experimental scale, together with *Ipomoea pescaprae* Sweet near Surat and Karachi to prevent sand drifts.

C. vulgaris Schrad.

H.–*Tarbuj*; B.–*Tarmuz*; Bo.–*Turbuj*; S.–*Tarambuja*; Tam.–*Pitcha.*

Fruit—cooling, diur.

Seeds—cooling, aphrodis., tonic, diur.

Seed-oil—subst. for almond oil.

Citrullin (*Biochem. Z.*, 1929, 267; 1930, 420; *Ber. dtsch. chem. Ges.*, 1930, 2881; *Bull. imp. Inst., Lond.*, 1916, 160; 1925, 145); fruit contains carotene, lycopin (*Ber. dtsch. chem. Ges.*, 1930, 2882); mannitol (*J. Amer. chem. Soc.*, 1945, 115); varying percentages (20-40) of oil from seeds (*J. Indian. chem. Soc.*, 1945, 119); fruit analysis (*Hlth Bull.* No. 23, 1941, 39); poor in provitamin A and vitamin C (*J. sci. industr. Res.*, 1949, 35B; *Indian J. agric. Sci.*, 1943, 639); fruit rich source of pectin (*Proc. Indian Acad. Sci.*, vol. 29B, 1949, 155); seeds rich source of the enzyme urease (*Bull. imp. Inst., Lond.*, 1925, 149; *Biochem. J.*, 1939, 1284); juice contains citrulline to the extent of 0·17% (Wehmer, II, 1198).

Largely cultivated throughout India.

C. vulgaris var. **fistulosus** (Stocks) Duthie & Fuller

P.–*Tinda, Tendu.*

Seeds—used medicinally.

Analysis of fruit (*Hlth Bull.*, No. 23, 1941, 34).

Cultivated largely in Uttar Pradesh, Punjab and Bombay for its fruit which is used as a vegetable.

CITRUS (*Rutaceae*)

C. aurantifolia (Christm.) Swingle syn. *C. medica* var. *acida*

B.–*Kaghzinimbu*; H.–*Kaghzi nimbu*; Tel.–*Nimma*; Mal.–*Erumichinarakam*; Tam.–*Elumichai.*

Fruit—refrig., appetizer, antisep., stomch., antiscor., in bilious vomiting.

Juice contains citric acid (Winton & Winton, II, 712); volatile oil containing citral, limonene, linalool, linalyl acetate, terpineol and cymene (Thorpe, VII, 659; *Chem. Abstr.*, 1938, 1400; *Perfum. essent. Oil Rec.*, 1949, 333); composition of petitgrain oil (Parry, I, 440, 450); leaves contain coumarins, isopimpinellin, bergapten, citropten and bark, xanthyletin (*J. Indian chem. Soc.*, 1947, 421; 1946, 41).

Wild in the warm valleys of the outer Himalayas, from Garhwal and Sikkim to the Khasia and Garo Hills, Chittagong, probably also the mountain tracts of Madhya Pradesh and of the W. Peninsula and the Satpura mountains of Madhya Bharat up to 4,000 ft. Also cultivated in the plains and up to 4,000 ft.

C. aurantium Linn. including *C. aurantium* var. *bigaradia*

H.–*Khatta*; Mal.–*Karna*; Tel.–*Mallikanarangi*; Tam.–*Narattai*.

Fruit—bitter, laxt., stomch.

Provitamin A and vitamin B_1 (Wealth of India, II, 189); oil composition (*J. Indian Inst. Sci.*, 1925, 178A); fresh flowers yield oil of neroli bigarade and orange flower water; composition of neroli oil (Parry, I, 440, 450); composition of petitgrain oil obtained from the young shoots and leaves (Thorpe, VIII, 660; *Chem. Abstr.*, 1948, 6060); peel contains hesperidin, *iso*hesperidin, aurantiamarin, a crystalline acid, amorph. resinous body; bitter principle mostly in the spongy portion (Wealth of India, II, 204).

Met with throughout India. Cultivation is largely centred in Guntur district (Madras).

C. aurantium Linn. var. bergamia

B.–*Nebu*; H.–*Limu, Nibu*; S.–*Dantaharshana*.

Leaves—anthelm., stomch.

Unripe fruit—digest, tonic, appetizer.

Ripe fruit—aphrodis.

Oil from peel—linalyl acetate, limonene, *l*-linalool, terpineol, etc. (Parry, 418, 426, 439, 442, 450, 451).

Rarely met with in India. Considered to be a form of sour orange or as a hybrid.

C. limettioides Tanaka syn. *C. medica* var. *limetta* W. & A.

B. & H.–*Mitha nebu*; Tam.–*Kolumichangai*; Tel.–*Gajanimma*.

Fruit—refrig., in fever and jaundice.

Oil from peel—pinene, limonene, linalool, linalyl acetate, etc. (Parry, 418, 426, 439, 442, 451).

Commonly cultivated in central and northern parts of India.

C. limon (Linn.) Burm. f. syn. *C. medica* Linn. var. *limonum*

B.–*Bara nebu, Gora nebu*; H.–*Bara nimbu, Pahari nimbu*; S.–*Maha nimbu*; Tam.–*Periya yelumichai*; Tel.–*Bijapuram*

Rind of ripe fruit—stomch., carmin.

Juice of ripe fruit—antiscor., refrig., in scurvy, in rheumatism, dysen. and diar.

Oil from peel—*d*-limonene, *d*-α-pinene, camphene, linalool, etc. (*Perfum. essent. Oil Rec.*, 1949, 333; Parry, 418, 426, 439, 442, 450, 451); lemon-juice contains an antipneumonia factor (*Chem. Abstr.*, 1934, 5504); juice—bactericidal (*Chem. Abstr.*, 1947, 785); peel contains bitter principle, essen. oil, hesperidin (U.S.D., 631).

Cultivated all over India, particularly in home gardens and small-sized orchards in Uttar Pradesh, Bombay, Madras and Mysore.

C. maxima (Burm.) Merr. syn. *C. decumana* Linn.

B. & H.–*Chakotra, Mahanimbu*; S.–*Madhukarkati*; Tam.–*Pambalimasu*; Mal.–*Pamparamasam*; Tel.–*Pampalamasam*.

Fruit—nutri., cardiotonic, refrig.

Leaves—useful in epilepsy, chorea and convulsive cough.

Naringin (*Proc. Indian Acad. Sci.*, vol. 16A, 1942, 10); oil from peel—*d*-limonene, α-pinene, linalool, geraniol, etc. (Parry, 418, 426, 439, 442, 450, 451); composition of petitgrain oil (*Perfum. essent. Oil Rec.*, 1949, 333).

Grown on a small scale in Coorg, Mysore, Bombay, Patiala, Punjab, Madras and Uttar Pradesh.

C. medica Linn. syn. *C. medica* var. *medica* proper

H.–*Bara nimbu, Bijaura, Turanj*; S.–*Amlakeshara, Begapura*; B.–*Bara nimbu, Begpura*; Tel.–*Lungamu*; Mal.–*Gilam*; Tam.–*Kadaranarathai*.

Root—anthelm., in constip., useful in vomiting, urinary calculus.

Flowers and buds—stim., astrin.

Ripe fruit—stim., tonic.

Juice—refrig., astrin.

Oil from peel—limonene, dipentene, citral, etc. (Parry, 418, 426, 439, 442, 450, 451).

Sparsely cultivated throughout the warm moist regions of India. Said to be wild in Chittagong, Sitakund Hill, Khasia and Garo Hills in the Bhabar and along Sarju in Kumaon.

C. paradisi Macf.

English–*Grapefruit*.

Juice—used for building up resistance to common colds and wound infections.

Fruit source of vitamin C and B_1; peels rich in pectin (*Indian Food Packer*, 1949, 14; *Chem. Abstr.*, 1949, 785); naringin (*Proc. Indian Acad. Sci.*, vol. 16A, 1942, 10); oil from peel contains limonene, oxygenated volatile constituents, sesquiterpenes, aldehydes, geraniol, cadinene, citral, etc. (*Industr. Engng Chem.*, 1934, 634);

composition of petitgrain oil (Parry, I, 440, 450).

Introduced into India recently and now mainly cultivated in Punjab and Sind.

C. reticulata Blanco syn. *C. aurantium* var. *aurantium* proper (in part)

B.–*Kamla nembu*, *Narungi*; H.–*Narangi*, *Sangtara*; S.–*Airavata*.

Fruit—laxt., aphrodis., astrin., tonic, relieves vomiting.

Flowers—stim.

Oil from peel—*d*-limonene, terpene, carene, linalool, etc. (*Proc. nat. Acad. Sci. India*, vol. 9, 1939, 175; *Indian Soap J.*, 1946, 245).

Cultivated in most parts of India. The areas of concentrated cultivation lie in Assam, Sikkim, Madhya Pradesh, Punjab and Coorg.

C. sinensis (Linn.) Osbeck syn. *C. aurantium* Linn. var. *aurantium* proper (in part)

H., B. & Bo.–*Musambi*, *Malta*; Tam.–*Sathagudi*; Tel.–*Battavinarinja*.

Fruit—purifies blood, allays thirst in fevers, cures catarrh, improves appetite.

Juice—useful in bilious affections and bilious diar.

Rind—carmin., tonic.

Fresh rind—rubbed on the face as remedy for acne.

Fruit source of antiscor. vitamin; oil from peel—*d*-limonene, decyclicaldehyde, linalool, *dl*-terpineol. etc. (Parry, 418, 426, 439, 442, 450, 451); essen. oil obtained from flowers known as neroli oil, and from leaves and young shoots as petitgrain oil; composition of oil of neroli (Thorpe, VIII, 660; *Perfum. essent Oil Rec.*, 1949, 333); composition of petitgrain oil (*Chem. Abstr.*, 1949, 4814); leaves—1-stachydrine, glycoside hesperidin (Wehmer, I, 623).

Cultivated in many parts of India chiefly in the Bombay and Madras States, as also in Hyderabad, Coorg, Madhya Pradesh, Uttar Pradesh, Bihar, Orissa and Punjab.

CLAOXYLON (*Euphorbiaceae*)

C. indicum Hassk.

Leaves—purg., in Java used for poulticing.

South India.

CLAUSENA (*Rutaceae*)

C. excavata Burm. f.

Uriya—*Agnijal*.

Plant—diur., useful for digestion.

In Cambodia stem considered bitter, tonic and astrin., the infusion given in colic with or without diar.

Sub-Himalayan tract from Nepal eastwards, Chota Nagpur, Orissa and Chittagong.

C. lansium (Lour.) Skeels syn. *C. wampo* Blanco

In Tongking the dried fruit with seeds given in broncht.

Cultivated in India to a small extent.

C. pentaphylla (Roxb.) DC.

H.–*Ratanjote*, *Rowana*.

Bark—used in vet. medicine for treatment of wounds and sprains; it is powdered and applied with sweet oil to flesh wounds.

Sub-Himalayan tract of Kumaon (up to 2,000 ft.) and Nepal, Sikkim, Oudh forests and Champaran.

C. wampi Blanco: see **C. lansium** (Lour.) Skeels

CLAVICEPS (*Hypocreales*)

C. purpurea (Fr.) Tul.

English—*Ergot*.

Ergot—Oxytocic, abortif.

Contains a number of alks., carbohydrates, lipoids, dyes, amino-acids, quaternary ammonium bases, sterols and a number of amines; six isomeric pairs of alks. have been isolated, viz. ergotamine and ergotaminine, ergometrine and ergometrinine, ergosine and ergosinine, ergocornine and ergocorninine, ergocrystine and ergocrystinine; the first named of each of these pairs of alks. is laevorotatory and physiologically active while the second in each pair is dextrorotatory and less active (I.P.C., 101); ergobasine acts on uterus like ergotamine, accelerates respiration; lethal dose for white mice 0·145, rat 0·5, rabbit 7·5, cock 10 mg./g. (*C.R. Soc. Biol., Paris*, 1935, 1302; *Chem. Abstr.*, 1936, 160); alks. ergosine and ergometrinine (*Nature, Lond.*, 1936, 137; *Chem. Abstr.*, 1936, 2570; *J. chem. Soc.*, 1936, 1166; *Chem. Abstr.*, 1936, 7579); ergomonamine (*Quart. J. Pharm.*, 1936, 230; *Chem. Abstr.*, 1936, 6745); ergometrine (*Chem. Abstr.*, 1941, 2281); ergotamine in doses of 0·2-0·6 mg. produces negative inotropic and negative chronotropic action on the heart (*Arch. Sci. biol., Napoli*, 1940, 341; *Chem. Abstr.*, 1941, 8108; *Quart. J. Pharm.*, 1944, 1, 95); total alk. content of Nilgiri ergot calculated as ergotoxine has been raised by selection from 0·19 to 0·4% (*Madras agric. J.*, 1942, 411; *J. sci. industr. Res.*, 1949, 14A; *Proc. Indian Acad. Sci.*, vol. 31B, 1950, 103).

A fungus parasitic on grasses and especially on rye (*Secale cereale* Linn.). Cultivated in the Nilgiris.

CLEISTANTHUS (*Euphorbiaceae*)

C. collinus (Roxb.) Benth. & Hook. f.
H.–*Garari*; B.–*Karlajuri*; Tam.–*Nilaippalai, Odaichi*; Tel.–*Kadishe*.

Plant—astrin., extremely poisonous.

Extract of leaves, roots and specially fruits—violent gastro-intestinal irrit.

Root, leaf and bark—fish poison.

Saponin (*Pharm. Weekbl.*, 1909, 16); alk. (Dymock, Warden & Hooper, III, 271); active principle glucd. oduvin [*J. Inst. Chem.* (*India*), 1944, 16, 59]; tannin., saponin (*Indian For. Leafl.*, No. 72, 1944, 8; Wealth of India, II, 230).

Bundelkhand, Bihar, Chota Nagpur, Madhya Pradesh, Orissa, N. Circars, Carnatic, and the Deccan especially Hyderabad and Malabar.

CLEMATIS (*Ranunculaceae*)

C. gouriana Roxb.
Bo.–*Moriel*; Dehra Dun–*Belkangu*; Kan.–*Telejadari*.

Bruised leaves and stems—vesic., poisonous.

Punjab Hills, W. Himalayas up to 5,000 ft., hilly districts throughout India between 1,000 and 3,000 ft.

C. graveolens Lindl.; see **C. orientalis** Linn.

C. nepaulensis DC.
P.–*Birri, Wandak*; Kumaon–*Kanguli*.

Leaves—deleterious to skin.

Acrid and poisonous properties due to anemonin (*J. sci. industr. Res.*, 1947, suppl., 8).

Temperate Himalayas from Garhwal to Bhutan. In Kumaon throughout between 4,500 and 7,000 ft., usually found in shady moist ravines.

C. orientalis Linn. syn. *C. graveolens* Lindl.
Baluchistan–*Hushokawal*.

Plant—Poisonous.

Hydrocyanic acid (Pammel); contains inositol (Wehmer, I, 325); acrid and poisonous properties due to anemonin (*J. sci. industr. Res.*, 1947, suppl., 8).

Dry inner valleys from the Indus to Kumaon in the western Himalayas, ascending to 14,000 ft., and in W. Tibet.

C. smilacifolia Wall.
Mal.–*Vatiyampu*; Tel.–*Gurraputige*; Kan.–*Hottuhambu*.

Decoct. of roots—used against courbature in Indo-China.

Kumaon, Himalayas from Sikkim eastwards up to 5,000 ft., Assam, Ganjam, Konkan, Kanara and Deccan of Bombay State.

C. triloba Heyne ex Roth
S.–*Laghuparnika*; H.–*Murhari*; Bo.–*Moravela*.

Plant—applied to boils and itch, used in leprosy, blood diseases, fevers and snake-bite.

Acrid and poisonous properties due to anemonin (*J. sci. industr. Res.*, 1947, suppl., 8).

Konkan, Deccan and W. Ghats.

C. wightiana Wall.
Poisonous.

Hydrocyanic acid (Pammel).

Hills of the Deccan, Orissa and Konkan, common in the Western Ghats and the Nilgiris up to an altitude of 7,500 ft.

CLEOME (*Capparidaceae*)

C. brachycarpa Vahl ex DC.
Urdu–*Panwar*.

Plant—bitter, good for scabies, rheumatism and inflam.

Leaves—in leucoderma.

Sind, Baluchistan, W. Rajputana Desert and the Punjab Plains.

C. chelidonni Linn. f.
Porebunder–*Ubhitalvani*.

Root—considered vermifuge in Indo-China.

Infusion of plant—used in gingivitis and skin diseases.

N. Circars, most places throughout the Bombay State.

C. felina Linn. f.
Mal.–*Ariavila*.

Seeds—rubft., vesic., given internally as vermifuge

Plant—antiscor.

S. Mahrata Country, Northern Circars and the Deccan districts of the Madras State.

C. heptaphylla Linn.
Used as stomch. and vulnerary.

Planted in Indian gardens.

C. icosandra Linn. syn. *C. viscosa* Linn.
S.–*Arkakanta*; H.–*Hulhul, Hurhur*; B.–*Hurhuria*; Tel.–*Kukhavominta*; Mal.–*Ariavila*; Tam.–*Nayikkadugu*.

Leaves—rubft., vesic., sudorific, external application for wounds and ulcers.

Juice of leaves—to relieve earache.

Seeds—carmin., anthelm., rubft., vesic.

Seeds contain 0·1% viscosic acid, 0·04% viscosin (*J. Indian chem. Soc.*, 1938, 532; *Chem. Abstr.*, 1939, 2558); analysis of plant (*Indian J. med. Res.*, 1949, 29).

A common weed throughout the greater part of India.

C. monophylla Linn.
Santh.–*Hurhura.*

Pounded root—put on the lips by the Santals to restore consciousness when in a faint.

From Bihar and Orissa to Gujarat, the Deccan, the Konkan, S. Mahrata Country, in fields and waste places.

C. pentaphylla Linn.; see **Gynandropsis gynandra** (Linn.) Briquet

C. viscosa Linn.; see **Polanisia isocandra** (Linn.) W. & A.

CLERODENDRON (*Verbenaceae*)

C. siphonanthus (R. Br.) C.B. Clarke; see **Clerodendrum indicum** (Linn.) Ktze.

CLERODENDRUM (*Verbenaceae*)

C. indicum (Linn.) Ktze. syn. *Clerodendron siphonanthus* (R. Br.) C.B. Clarke
S.–*Bhargi*; H. & Bo.–*Bharangi*; B.–*Bamunhati*; P.–*Arni*; Tel.–*Bharangi, Hunjika*; Tam.–*Narivalai.*

Root—useful in asthma, cough and scrofulous affections.

Resin—employed in syphilitic rheumatism.

Juice of leaves—used with ghee as an application to herpetic eruptions and pemphigus.

Leaves—vermifuge, bitter tonic

Alk. (*Bull. Inst. bot. Buitenz.*, 1902, Nr. XIV. 35; *Meded. PlTuin, Batavia*, 1900, 13); anthelm. property due to a bitter principle present in the leaves (Chopra, Indigenous drugs Enquiry, 1941, 32).

Deccan and Carnatic, W. coast districts of Madras State, Kumaon, from Sikkim and Assam to Tenasserim, and cultivated for ornamental purposes.

C. inerme (Linn.) Gaertn.
S.–*Kundali*; H.–*Lanjai*; B.–*Bonjoi*; Bo.–*Vanajai*; Mal.–*Nirnochi*; Tam.–*Pinarichanganguppi*; Tel.–*Takkolakamu*

Juice of leaves—alter., febge.

Leaves—in form of poultice used to resolve buboes.

Juice of root—alter.

Root—by boiling in oil a liniment obtained which is useful in rheumatism.

Medicinal properties of the plant resemble those of *Swertia chirayita.*

Leaves contain amorphous bitter principle, resin, gum (Dymock, Warden & Hooper, III, 76).

Throughout India near the sea.

C. infortunatum Linn.
H. & B.–*Bhant*; Bo.–*Bhat*; S.–*Bhantaka*; Tam.–*Perugilai*; Tel.–*Gurrapukattiyaku*; Mal.–*Peruku.*

Leaves and roots—employed externally for tumours and certain skin diseases.

Leaves—subst. for chiretta as tonic and antiper.

Fresh juice of leaves—vermifuge, used as bitter tonic and febge. in malaria especially of children.

Leaves and flowers—in scorpion-sting.

Sprouts—in snake-bite.

Leaves contain bitter substance clerodin (*Sci. & Cult.*, 1936, 163; *Chem. Abstr.*, 1937, 209; *Trans. Bose Res. Inst.*, 1936-37, 75; *Chem. Abstr.*, 1939, 3384; *J. Indian chem. Soc.*, 1937, 51); leaves contain proteinase and peptidase (*Chem. Abstr.*, 1940, 7949).

Throughout India.

C. phlomidis Linn. f.
S.–*Vataghni*; H. & Marathi–*Arni*; Bo.–*Airan*; Tam.–*Taludalai*; Tel.–*Takkolamu*; Mal.–*Tirutali.*

Root—bitter tonic, given in convalescence of measles.

Juice of leaves—alter., given in neglected syphilitic complaints.

Plant—given to cattle as a cure for diar. and worms.

Throughout India in the drier parts and Baluchistan.

C. serratum (Linn.) Moon
H.–*Barangi*; S. & Bo.–*Bharangi*; Tam.–*Angaravalli*; Tel.–*Gantubarangi*; Mal.–*Cherutekku.*

Root—in febrile and catar. affections, useful in malaria.

Leaves—used for fevers, boiled with oil and butter made into an ointment useful in cephalalgia and ophthalmia, also used in snake-bite.

Alk. (*Bull. Inst. bot. Buitenz.*, 1902, Nr. XIV. 35; *Meded. PlTuin, Batavia*, 1900, 13).

More or less throughout India.

CLITORIA (*Leguminosae*)

C. ternatea Linn.
S.–*Aparajita*; H. & B.–*Aparajit*; M.–*Kakkanan.*

Seeds—purg., aper.

Root—bitter, cath., purg., diur.

Root bark—diur., laxt.

Plant—used in snake poisons.

Seeds contain a fixed oil and a bitter resinous principle; both seeds and root-bark contain tannin (Dymock, Warden & Hooper, I, 460).

A common garden plant; also occurs among hedges all over the tropical region from the Himalayas to Ceylon.

CNICUS (*Compositae*)

C. arvensis Hoffm.; see **Cirsium arvense** (Linn.) Scop.

C. sinensis Gard. & Champ.; see **Cirsium sinense** C.B. Clarke

COCCINIA (*Cucurbitaceae*)

C. indica W. & A. = **C. cordifolia** Cogn. syn. *Cephalandra indica* Naud.

S.–*Bimba*; H. & P.–*Kanduri*; B.–*Telakucha*; Bo.–*Bhimb*; Tam.–*Kovaikai*, *Kovai*; Tel.–*Dondakaya*.

Juice from leaves and roots—used in diabetes.

Leaves—applied externally in eruptions of skin.

Plant—internally in gonor.

Enzyme, hormone, and traces of an alk.; alk. pharmacologically inert; the juice contains an amylase (*Indian J. med. Res.*, 1925, 11; *Indian med. Gaz.*, 1925, 201).

Throughout India.

COCCOLOBA (*Polygonaceae*)

C. uvifera Linn.

Fruit—astrin. (Wealth of India, II, 257).

A native of West Indies, has been introduced into Indian gardens.

COCCULUS (*Menispermaceae*)

C. hirsutus (Linn.) Diels

B.–*Huyer*; Bo.–*Vasanvel*; H.–*Jamti-ki-bel*; S.–*Garudi*; Tam.–*Kattukkodi*; Tel.–*Dusaraitige*.

Root—refrig., laxt., sudorific, alter., useful in chr. rheumatism and veneral diseases.

Juice of leaves—when mixed with water forms a jelly which is taken as a cooling medicine for gonor. and used externally for eczema, prurigo and impetigo.

Tropical and subtropical India from the foot of the Himalayas to S. India.

C. laurifolius DC.

Jungle tribes of the Malay Peninsula use the plant to poison their arrows and darts.

Toxic alk.; coclaurine (*Arch. exp. Path. Pharmak.*, 1893, 266; *J. pharm. Soc. Japan*, 1925, No. 524, 3); bark and leaves contain coclaurine with a curare-like action (Wehmer, I, 332).

Subtropical Himalayas from Nepal to Jammu up to 5,000 ft., W. Ghats of Madras State, E. Bengal.

C. leaeba DC.; see **C. pendulus** (Forsk.) Diels

C. macrocarpus W. & A.; see **Diploclisia glaucescens** (Bl.) Diels

C. pendulus (Forsk.) Diels syn. *C. leaeba* DC.

P.–*Illarbillar*; Gujarati–*Parwatti*; Tel.–*Dusaratige*.

Root—used in the treatment of intermittent fevers, tonic, similar to *Tinospora cordifolia*.

Contains 1% calumbine and 0·6% palmatine (*Bull. Sci. pharm.*, 1938, 7; *Chem. Abstr.*, 1938, 3089); the root contains the alks. pelosine 2%, sangoline 3% and an amaroid columbin (*J. Bombay nat. Hist. Soc.*, 1938, 85).

Sind, Baluchistan, Waziristan, Punjab Plains to N. Circars, Kathiawar, Deccan and Carnatic to Tinnevelly.

C. villosus DC.; see **C. hirsutus** (Linn.) Diels

COCHLEARIA (*Cruciferae*)

C. armoracia Linn.

Herb—stim., diaphor., diur., digest., used as counterirrit. in lumbago.

Root contains a pungent, acrid, vesicating volatile oil; pungency due to glycoside sinigrin and enzyme myrosin (B.P.C., 1934, 157); crushed plant has an inhibitory effect on the growth of micro-organisms attributed to *iso*-thiocyanate (*Chem. Abstr.*, 1939, 8675); root rich source of vitamin C (*Chem. Abstr.*, 1949, 1498).

A native of the marshy districts of eastern Europe. It is grown to a small extent in gardens both in north India and the hill stations of south India.

C. flava Buch.-Ham. ex Roxb.

Plant—used against fever.

Gangetic valleys from the Punjab to Bengal.

COCHLOSPERMUM (*Cochlospermaceae*)

C. gossypium DC.; see **C. religiosum** (Linn.) Alston

C. religiosum (Linn.) Alston syn. *C. gossypium* DC.

Arab.–*Katira*; H.–*Kumbi*; Mal.–*Appa kutakka*; Marathi–*Ganglay*; Tam.–*Tanakku*; Tel.–*Kondagogu*.

Gum—sweetish, cooling, sedative, used in coughs and gonor.

Dried leaves and flowers—stim.

Tree yields a gum (*J. chem. Soc.*, 1906, 1496; Wealth of India, II, 261; Wehmer, II, 797).

Garhwal, Bundelkhand, Bihar, Orissa, Bengal, Madhya Bharat, Deccan, W. Peninsula and Madras State in dry forests, especially on stony hills, in all districts, but less common on the W. Coast.

COCOS (*Palmae*)

C. nucifera Linn.

S.–*Narikela*; H.–*Nariyal*; B.–*Dab*, *Narikel*; Bo.–*Narel*; Tam.–*Tenkai*; Tel.–*Narikelamu*; Mal.–*Narikelam*.

Fruit—sweet, aphrodis., diur.

Oil—local application in alopecia, and in loss of hair after fevers and debilitating diseases.

Water of unripe fruit—cooling, useful in thirst, fever and urinary disorders.

Root—diur., astrin., and used in uterine diseases.

Flowers—astrin.

Enzyme—invertin, oxydase, catalase (*Bull. Dep. Agric. Ind. neerl.*, 4, 1907; *Chemikerztg*, 1900, 16; *Analyst*, 1924, 223; *Pharm. Zentralh.*, 1906, 1045; *J. Soc. chem. Ind., Lond.*, 1916, 1138); milk—histidine, arginine, lysine, tyrosine, tryptophan, proline, leucine, alanine (*Milchw. Forsch.*, 1930, II, 218; *Chem. Abstr.*, 1943, 2422; *Chem. Zbl.*, 1931, I, 1378); yield of oil ranges from 57 to 75% (Wealth of India, II, 273); oil contains lauric, myristic, and fatty acids (*Chem. Abstr.*, 1948, 6140); oil—mixed glycerides (*J. Soc. chem. Ind., Lond.*, 1928, 261T); phytosterol and squalene (*Chem. Abstr.*, 1941, 2022; 1944, 883; 1948, 6140; ration containing 20% of coconut oil has retarding effect on the progress of experimental tuberculosis in albino mice (*Chem. Abstr.*, 1948, 8275, 8323, 6902); analyses of coconut water (*Hlth Bull.*, No. 230, 1941, 43); values for the vitamins of the B group (*Nature, Lond.*, 1945, 174).*

Cultivated in the hot damp regions of India, especially near the sea.

C. schizophylla Mart.; see **Arikuryroba schizophylla** Becc.

C. yatay Mart.; see **Butia yatay** Becc.

CODIAEUM (*Euphorbiaceae*)

C. variegatum Blume

Pounded leaves—applied as poultice on the abdomen of children suffering from urinary troubles.

Latex contains 6-8% tannin (Burkill, I, 616).

Commonly cultivated as an ornamental plant in gardens.

CODONOPSIS (*Campanulaceae*)

C. ovata Benth.

P.–*Ludut*.

Roots and leaves—as poultices used for bruises, ulcers and wounds.

Western Himalayas from Kashmir to Garhwal, 8,000-12,000 ft.

COFFEA (*Rubiaceae*)

C. arabica Linn.

H.–*Coffee*; B.–*Kafi*.

Infusion of seeds—stim., diur.

Seeds contain alk. caffeine; besides caffeine the leaves and fruits contain adenine, xanthine, hypoxanthine, guanine (*J. chem. Soc.*, 1856, 33; *Arch. Pharm., Berl.*, 1851, 148; *J. biol. Chem.*, 1924, 831; *Apothekerztg, Berl.*, 1893, 443; *Ber. dtsch. chem. Ges.*, 1920, 232); seeds also contain alk. trigonelline (*J. prakt. Chem.*, 1931, 11); beans contain 1·0-1·2% caffeine (Wealth of India, II, 299); raw coffee contains about 10% oil and wax (*Chem. Abstr.*, 1932, 4609; 1939, 768; 1943, 5607; 1944, 1133); aroma of coffee is partly attributable to mercaptans present in the roasted bean (*Chem. Abstr.*, 1947, 1349; 1948, 223).

Cultivated in India, grown principally in Madras, Coorg, Mysore, Travancore and Cochin.

COIX (*Gramineae*)

C. lachryma Linn.; see **C. lachryma-jobi** Linn.

C. lachryma-jobi Linn. syn. *C. lachryma* Linn.

S.–*Gavedhu, Jargadi*; H.–*Gurlu, Sankru*; B.–*Gurgur*; Bo.–*Kassaibija*; P.–*Sanklee*; Tam.–*Netpavalam*.

Seed—tonic, diur.

Root—used in menstrual disorders.

In Tongking grains considered blood purifier and diur.

Leucine, tyrosine, histidin, lysine, arginine, coicin (*J. Biochem., Tokyo*, 1922, 365); a prolamine, coicin, rich in leucine and glutamic acid has been isolated from the grains (Winton & Winton, I, 102).*

Throughout the hotter and damper parts of India up to 5,000 ft., wild or cultivated.

COLCHICUM (*Liliaceae*)

C. luteum Baker

H.–*Hirantutiya*; S.–*Hiranyatutha*; Kash.–*Virkum*; Pers.–*Suranjane talkh*.

Corms—used as carmin., laxt., aphrodis., alter., aper., given in gout, rheumatism, and diseases of liver and spleen, also as external application to lessen inflam. and pain.

Plant—used as subst. for *C. autumnale*.

Alk. (*Indian J. med. Res.*, 1929, 770); Indian corms contain alk. colchicine 0·21-0·25% of dried corms; seeds contain 0·41-0·43% alks. (*J. sci. industr. Res.*, 1947, 480A).

W. temperate Himalayas from Kagan and Kashmir to Chamba at 3,000-8,000 ft.

COLDENIA (*Boraginaceae*)

C. procumbens Linn.
S.–*Tripakshee*; H.–*Tripungki*; Bo.–*Tripakshi*; Tam.–*Serupadi*; Tel.–*Hamsapadu.*

Fresh leaves—ground and applied to rheum. swellings.

Dried plant—with equal part of fenugreek seeds is rubbed to a fine powder and applied warm for causing suppuration of boils.

Throughout India in moist places; a weed.

COLEBROOKEA (*Labiatae*)

C. oppositifolia Sm.
H.–*Binda, Pansra*; Bo.–*Dasari*; P.–*Shakardana*; Nep.–*Dosul.*

Root—a preparation of it is used in epilepsy.

Leaves—applied to wounds and bruises.

Hilly parts of India up to an altitude of 4,000 ft.

COLEUS (*Labiatae*)

C. amboinicus Lour. syn. *C. aromaticus* Benth.
B.–*Paterchur*; Bo. & H.–*Pathorchur*; S.–*Pashanabhedi*; Tam.–*Karpuravalli.*

Leaves—in urinary diseases, vaginal discharges.

Juice of leaves—mixed with sugar acts as a powerful arom. carmin., given in colic and dyspep.

Essen. oil containing carvacrol present in the herb in small quantities (*Ber. Schimmel u. Co., Lpz.*, 1919, 15; 1922, 19; *Pharm. Weekbl.*, 1915, 253; Parry, I, 269).*

Cultivated in gardens throughout India. Wild in Rajputana.

C. aromaticus Benth.; see **C. amboinicus** Lour.

C. blumei Benth.

Decoct. of leaves—given internally for dyspep. (Burkill, I, 635).

Cultivated in gardens.

COLOCASIA (*Araceae*)

C. antiquorum Schott; see **C. esculenta** (Linn.) Schott

C. esculenta (Linn.) Schott syn. *C. antiquorum* Schott
H.–*Arvi*; B. & S.–*Kachu*; Bo.–*Kachualu*; Tam.–*Seppan-kizhangu, Shamakkilangu*; Tel.–*Chamadumpa*; Mal.–*Shembu.*

Juice of petioles—styptic, stim., rubft.

Juice of corm—used in cases of alopecia, in scorpion-sting.

Juice of tubers contains amylase (*J. Indian chem. Soc.*, 1944, 223); analysis of tubers (*Hlth Bull.*, No. 23, 1941, 31); tubers contain sapotoxin (*Chem. Abstr.*, 1939, 5033); leaves and petioles good sources of provitamin A and vitamin C (Wealth of India, II, 312).

Wild on the banks of streams, ponds and marshes and in moist and shady situations inside forests in many parts of India up to an elevation of 8,000 ft.

C. macrorrhiza Schott; see **Alocasia odora** (Roxb.) C. Koch

C. virosa Kunth; see **Steudnera virosa** (Kunth) Prain

COLUTEA (*Leguminosae*)

C. arborescens Linn. var. **nepalensis** Baker; see **C. nepalensis** Sims

C. nepalensis Sims
Ladakh–*Braa.*

Leaves — purg.

Seeds — emetic.

Arid valleys of inner Himalayas, 8,000-11,500 ft., Ladakh to Kumaon, Kurram Valley.

COMBRETUM (*Combretaceae*)

C. decandrum Roxb.
H.–*Punk;* Tel.–*Bontatige.*

Leaves—used in western Africa in the treatment of bilious hematuric malarial fevers.

Bengal, Assam, northern and southern India.

C. nanum Buch.-Ham. ex D. Don
P.–*Dantjathi.*

Said to be medicinal.

Himalayan Terai from Sikkim to the Punjab.

C. pilosum Roxb.
H.–*Bhoree loth, Thoonia loth.*

Leaves—anthelm.

A decoct. of leaves is considered to be specific for *Ascaris lumbricoides* and *Oxyuris vermicularis* (*Indian med. Gaz.*, 1922, 374).

East Bengal and Assam.

COMMELINA (*Commelinaceae*)

C. benghalensis Linn.
S.–*Kanchata*; H. & B.–*Kanchara*; Tam.–*Kanavazhai, Kanangakarai*; Tel.–*Vennadevikura.*

Plant—bitter, emol., demulc., refrig., laxt., beneficial in leprosy (*J. Bombay nat. Hist. Soc.*, 1937, 362).

Throughout India in moist regions.

C. nudiflora Linn.
H.–*Kanshura*; S.–*Koshapushpi*; M.–*Vazhapazhathi.*

Bruised plant—applied to burns, itches and boils.

Leaves—used for poulticing sores.

Throughout India common in wasteland, frequent in Bengal.

C. obliqua Buch.-Ham.

H.–*Kanjuna*; B.–*Jatakanchura*; Kumaon–*Kanjura*.

Root—antid. to snake poison, useful in vertigo, fever and bilious affections, laxt., refrig.

Throughout India in the low moist parts; also on the lower Himalayas ascending up to 7,000 ft.

C. salicifolia Roxb.

B.–*Panikanchira*; H.–*Jalpipari*; S.–*Jalapippali*.

Plant—used in dysen., insanity.

Bengal, Assam, Coromandel and W. Peninsula.

C. suffruticosa Blume

Santh.–*Dareorsa*.

Root—applied to sores.

Tropical India from Nepal, Sikkim and Bengal to Madhya Bharat.

COMMIPHORA (*Burseraceae*)

C. agallocha (W. & A.) Engl.; see **Commiphora roxburghii** (Arn.) Engl.

C. mukul (Hook. ex Stocks) Engl. syn. *Balsamodendron mukul* Hook. ex Stocks

B., Bo., H. & Tel.–*Guggul*; S.–*Guggulu*; Tam.–*Gukkulu*.

Gum resin—astrin., antisep., expect., aphrodis., enriches the blood, demulc., aper., carmin., alter., antisp., emmen., in snake-bite and scorpion-sting.

Commercial product contains 1·45% essen. oil besides gum and resin (*Indian J. med. Res.*, 1942, 331).

Bellary, Mysore, Deccan, Khandesh, Kathiawar, Rajputana Desert, Sind and Baluchistan.

C. myrrha (Nees) Engl. syn. *Balsamodendron myrrha* T. Nees

S.–*Rasagandhi*; H.–*Bol.*; B.–*Gandharash*; M.–*Vellaippolam*.

Gum resin — in dyspep., chlorosis, amenor. and uterine affections.

Essen. oil, bitter substance (*Analyst*, 1909, 519; *Arch. Pharm., Berl.*, 1905, 641; 1906, 412; 1907, 427).

A native of Arabia and of the African coast of the Red Sea.

C. opobalsamum (Linn.) Engl. syn. *Balsamodendron opobalsamum* Kunth

H.–*Balasan*; Bo.–*Habbul balasan*.

Fruit—carmin., expect., stim.

Balsam—astrin., demulc., given in discharges from genito-urinary organs.

Essen. oil, bitter substance (*Arch. Pharm., Berl.*, 1895, 241).

Found on both sides of the Red Sea. Also recorded from the Nubian coast and in Abyssinia. Met with on the Asiatic side at Ghizandad in Arabia, at Eden and Yamen.

C. playfairii Hook. f. syn. *Balsamodendron playfairii* Hook. f.

Bo.–*Meeno harma*.

Gum resin — expect., in rheumatism.

Saponin (*Pharm. J.*, 1913, 369).

North-east Africa.

C. roxburghii (Arn.) Engl. syn. *Balsamodendron roxburghii* Arn.

B.–*Gugala*; Bo.–*Gugal*; S. & Tel.–*Agaru*; Tam.–*Kungulu*.

Gum resin—used in the same way as from *C. mukul*.

Assam, Sylhet, E. Bengal and Madhya Pradesh

C. stocksiana Engl.

Bo.–*Bayisagugul*; Tam.–*Malaikiluvai*.

Gum—application in Delhi sores and for cleansing and stimulating bad ulcers.

Sind and Baluchistan.

CONIUM (*Umbelliferae*)

C. maculatum Linn.

Ind. Baz.–*Kurdumana*.

Neurotic in painful affections of skin, aphrodis.

Alk., d-coniine, γ-coniceine, conhydrine, n-methyl coniine, hesperidin (*Pharm. J.*, 1904, 185; *J. prakt. Chem.*, 1928 (2), 25; *Ber. dtsch. chem. Ges.*, 1894, 2615; 1895, 302; 1902, 1330); percentage of alks. in various parts: stems 0·01 to 0·06, leaves 0·03 to 0·8, flowers 0·09 to 0·24, green-fruit 0·73 to 0·98 (*Arch. Pharm., Berl.*, 1938, 280); alks. poisonous, produce paralysis of motor nerve terminations' and stimulation followed by depression of central nervous system, cause nausea and vomiting (Henry, 1949, 21).

Europe and temperate Asia; common in England.

CONNARUS (*Connaraceae*)

C. monocarpus Linn.

Bo.–*Sunder*; Mal.–*Kuriel*; Tam.–*Cedippulikkodi*.

Pulp of fruit—used in eye diseases.

Decoct. of root—given in syphilis.

Bark and wood—used in the treatment of ulcers.

Oil from roots—used as an application for swellings.

From the Konkan to Travancore.

CONOCEPHALUS (*Moraceae*)

C. suaveolens Blume

Watery sap from stems—used for diseases of the eye.

Roots—used for poulticing itch (Burkill, I, 651).

A large climber in the eastern Himalayas and Khasi Hills.

CONVOLVULUS (*Convolvulaceae*)

C. arvensis Linn.

H.–*Hiranpadi*; Bo.–*Hiranpag*; B.–*Gondal*; S.–*Bhadrabala*; P.–*Hiranpaddi*.

Root—purg.

Convolvulin (Dymock, Warden & Hooper, II, 543); no alk. detected (*Trudy Uzbekskogo Gosudarst. Univ., Sbornik Rabot Khim.*, 1939, 43; *Chem. Abstr.*, 1941, 4029); plant yields 1·52-4·0% resinous substance possessing cath. properties; dried rhizome contains 4·9% resin (*Riv. ital. Essenze*, 1946, 105; *Chem. Abstr.*, 1947, 2859).

A common weed of cultivation all over India, ascending to 10,000 ft. in the Himalayas.

C. glomeratus Choisy ex DC.

Gujarati–*Runchhaliveldi*.

Plant—purg.

Punjab, Rajputana, Sind, Baluchistan and Kathiawar.

C. scammonia Linn.

H.–*Sak munia*.

Resin from rhizomes—hydragogue cath., administered in dropsy and anascara (Chopra, 574).

Roots contain about 8% resin (Wealth of India, II, 315).

A native of the Mediterranean region, is said to be grown to a limited extent in India.

C. spinosus Burm. f.

Plant—purg.

Baluchistan.

COPERNICIA (*Palmae*)

C. cerifera Mart.

English—*Brazilian wax palm*.

Roots—used as subst. for sarsaparilla.

Sometimes grown in Indian gardens.

COPTIS (*Ranunculaceae*)

C. teeta Wall.

H.–*Mamira*; B. & Assam–*Tita*; Bo.–*Mamiran*.

Rhizome—bitter tonic, stomch., efficacious in debility, atonic dyspep., and mild forms of intermittent fevers; used as a salve for the eyes.

In China used as antidiabetic (*Chem. Abstr.*, 1931, 741).

Berberine, coptine (*Pharm. J.*, 1912, 482; *Amer. J. Pharm.*, 1873, 193; *Arch. Pharm., Berl.*, 1884, 747; Wehmer, I, 312).

Temperate regions of Mishmi Hills at the northern frontier of Assam.

CORALLOCARPUS (*Cucurbitaceae*)

C. epigaeus Benth. ex Hook. f.

S.–*Patalagaruda*; H.–*Akasgaddah*; Bo.–*Karwinai*; Mal.–*Akash garudand*; Tel.–*Nagadonda*; Mal.–*Kollanhovakizhauna*; Tam.–*Akashagarundan*.

Root—aper., alter., used in chr. dysen., syphilitic rheumatism, chr. mucous enteritis and snake-bite.

Root contains a bitter principle like bryonin (Wealth of India, II, 323).

Punjab, Sind, Gujarat, Rajputana, Deccan, S. Mahrata Country and Carnatic.

CORCHORUS (*Tiliaceae*)

C. aestuans Linn. syn. *C. acutangulus* Lam.

B.–*Titapat*.

Seeds—stomch., in pneumonia.

Analysis of leaves (*Indian J. med. Res.*, 1949, 29).

Throughout the hotter parts of India.

C. acutangulus Lam.; see **C. aestuans** Linn.

C. antichorus Raeusch.; see **C. depressus** (Linn.) Christensen

C. capsularis Linn.

Assam–*Titamara*; S.–*Kalasaka*; H. & B.–*Narcha, Titapat*.

Infusion of leaves—demulc., stomch., laxt., carmin., stim. to increase appetite, bitter tonic, in dysen., fever, dyspep. liver disorders.

Decoct. of root and unripe fruit—in diar.

Leaves contain glucd. capsularin, which appears to be related to corchorin (*J. chem. Soc.*, 1922, 1044; *Merck's Index*, 1929, 383; *J. Indian chem. Soc.*, 1927, 205; 1928, 759; 1930, 905); corchorin and bitter substance corchoritin isolated from seeds (*J. Indian chem. Soc.*, 1930, 83, 905; 1931, 651); cardiac aglycon corchortoxin having heart action similar to digitalis group of genins but not as intense obtained from seeds (*Helv. chim. acta*, 1949, 2385; *Chem. Abstr.*, 1950, 4015).*

Throughout the hotter parts of India. Cultivated in most tropical countries.

C. depressus (Linn.) Christensen

H.–*Baphuli*; Gujarati–*Bahuphali*; P.–*Babuna*; S.–*Bhedani*.

Leaves—emol.

Plant—has tonic properties, given as a cooling medicine in fevers.

Seeds—in decoct. with milk and sugar given as tonic.

Mucilage—used in gonor.

Punjab, Sind, Baluchistan, Cutch, Gujarat and Deccan.

C. fascicularis Lam.
Ind. Baz.–*Bhaphali*; B.–*Bilnalita*; Bo.–*Hirankhori*; S.–*Bhirupatrika*.

Plant—mucilaginous, astrin., restor.

Throughout the hotter parts of India.

C. olitorius Linn.
H.–*Koshta*; Bo.–*Tankla*; B.–*Lalitapat, Mithapat*; Tam.–*Peratti*; Tel.–*Parintakura*.

Leaves—demulc., tonic, diur., useful in chr. cystitis, gonor. and dysuria.

Infusion of leaves—tonic, febge.

Seeds—purg. (*Arch. Pharm., Berl.*, 1909, 184); fruit—vitamin C (*Philipp. J. Sci.*, 1934, 379).

Wild in many parts of India, but not in Bengal. It is the predominant species grown in the districts of Hooghly, 24 Parganas and Nadia in West Bengal.

C. trilocularis Linn.
Bo.–*Kaduchhunchh*; Gujarati–*Kadvichhunchhdi*; H.–*Kadukosta*; S.–*Dirghachanchu*.

Seeds—in fever and obstruction of the abdominal viscera.

Mucilage—demulc.

Bihar, Deccan and Carnatic of Madras and Bombay States, Khandesh, Gujarat, Cutch, Sind and Baluchistan.

CORDIA (*Boraginaceae*)

C. angustifolia Roxb.; see **C. rothii** Roem. & Schult.

C. dichotama Forst. f. syn. *C. myxa* Roxb. non Linn.; *C. obliqua* Willd.
H.–*Lasora, Chota-lasora*; B.–*Buhul, Bohodari*; Bo.–*Gondan*; Tam.–*Naruvili*; Tel.–*Chinna nakkeru*.

Fruit—astrin., anthelm., diur., demulc., expect., used in affections of urinary passages, diseases of lungs and spleen.

Juice of bark—in gripes.

Decoct. of bark—used in dyspep. and fevers.

Kernels—remedy in ringworm.

Leaves—application to ulcers and in headache.

Plant—in snake-bite.

Bark contains 20% tannin (*Indian For. Leafl.*, No. 72, 1944, 8).

Common throughout India, wild and often planted.

C. latifolia Roxb.; see **C. dichotoma** Forst. f.

C. macleodii Hook. f. & Thoms.
H.–*Dahipalas*; Marathi–*Dhaiwan*; Tam.–*Palandekku*; Tel.–*Botuku*.

Bark—used in jaundice.

Chota Nagpur, Madhya Bharat, Konkan, N. Kanara, Deccan and Carnatic.

C. myxa Roxb. non Linn.; see **C. dichotoma** Forst. f.

C. obliqua Willd.; see **C. dichotoma** Forst. f.

C. rothii Roem. & Schult.
H. & P.–*Gondi*; Bo.–*Gundi*; S.–*Laghushleshmataka*; Tam.–*Selu*; Tel.–*Chinnabotuku*.

Decoct. of bark—astrin., used as gargle.

Punjab, Sind, Rajputana, Gujarat, Deccan and Carnatic.

C. vestita Hook. f. & Thoms.
H.–*Kumpaiman*; P.–*Kumbi*; Dehra Dun & Garhẃal–*Bairola*.

Fruit—demulc., expect., astrin.

Punjab, westwards as far as the Jhelum, sub-Himalayan forests from Dehra Dun and the Siwalik Range eastwards to the Sarda River in N. Oudh.

C. wallichii G. Don syn. *C. obliqua* Willd. var. *wallichii*.
H.–*Bara lessura*; B.–*Bahubara*; Bo.–*Burgund*; S.–*Shelu*; Tam.–*Namaviri*; Tel.–*Peddanakkera*; Mal.–*Periyaviri*.

Fruit—demulc., expect., astrin. useful in bronchial affections and in irritation of urinary passages.

Gujarat, N. Kanara, Deccan and W. Ghats of Madras State.

CORDYLINE (*Liliaceae*)

C. fruticosa Goeppert syn. *C. terminalis* Kunth

Lower part of the rhizome—eaten with betel as a remedy for diar.

Tropical India from Bengal and Assam eastwards, and frequently cultivated in gardens.

CORIANDRUM (*Umbelliferae*)

C. sativum Linn.
S.–*Dhanyaka*; B.–*Dhane*; H.–*Dhanya, Dhania*; Tam.–*Kothamalli*; Tel.–*Dhaniyalu*; Mal.–*Kothumpalari*.

Fruits—arom., stim., carmin., diur., tonic, stomch., antibil., refrig., aphrodis.

Seeds—chewed to correct foul breath.

Essen. oil (*Ber. Schimmel u. Co., Lpz.*, 1924, 20; 1892, April, 11; *J. Indian Inst. Sci.*, 1925, 182; *Ber. Schimmel u. Co., Lpz.*, 1926, 23; 1925, 17; *Bull. imp. Inst., Lond.*, 1917, 301; *Agric. Live-Stk India*, 1934, 583); coriandrol (*Chem. Zbl.*, 1931, I, 2129); oxalic acid and Ca content in fresh leaves are 0·012% & 0·172% and in air dry leaves 0·085% & 1·23% respectively (*Chin. J. Physiol.*, 1938, 209; *Chem. Abstr.*, 1938, 9318); analysis of fruit (*Hlth Bull.*, No. 23, 1941, 36); leaves rich source of vitamin C and of carotene (*J. Indian chem. Soc.*, 1947, 358); Indian coriander contains 0·405-0·592% of essen. oil (*Agric. Live-Stk India*, 1934, 583); oil causes irritation when in contact with skin for a long time (*Chem. Abstr.*, 1946, 7525); besides essen. oil seeds contain 19-21% of a fatty oil (*Chem. Abstr.*, 1930, 3666, 4411).

CORIARIA (*Coriariaceae*)

C. nepalensis Wall.

H.-*Makola, Masuri*; Kash.-*Balel, Tadrelu*; Nep.-*Bhojinsi*.

Leaves—poisonous in large doses.

Leaves contain 20% tannin (*Indian For. Leafl.*, No. 72, 1944, 8).

Outer Himalayas from the Indus to Bhutan up to 8,000 ft. in the north-west and to 11,000 ft. in Sikkim; also in Manipur.

CORYDALIS (*Fumariaceae*)

C. govaniana Wall.

S.-*Bhutakesi*; H. & B.-*Bhut kesi*; P.-*Bhutkis*.

Root—tonic, antiper., diur., alter., prescribed in syphilitic, scrofulous and cutaneous affections.

W. Himalayas from Kashmir to Kumaon, 8,000-12,000 ft.

C. ramosa Wall.

Kurram valley—*Mamiran*.

Sap of plant—employed in eye diseases.

Temperate Himalayas from Kashmir to Sikkim, 12,000-15,000 ft.

CORYLUS (*Betulaceae*)

C. avellana Linn.

H.-*Findak, Bindak*.

Nuts—tonic, stomch., aphrodis.

(*Hoppe-Seyl. Z.*, 1886, 316; *J. Amer. chem. Soc.*, 1908, 848); bark contains lignoceryl alcohol, betulinol and sitosterol (*Chem. Abstr.*, 1934, 3527;) leaves contain about 2% myricitroside and allantoic acids (*Bull. Soc. Chim. biol., Paris*, 1939, 455; *Chem. Abstr.*, 1937, 7473; 1939, 5406); kernel rich in phosphorus, contains 50-65% of oil with pleasant odour (Wealth of India, II, 358).

Found in England, France and eastwards to the Caucasus and Asia Minor. Alluded to by some authors as cultivated on the Himalayas.

C. colurna Linn.

Garhwal—*Kabasi*; Kumaon-*Bhotiabadam*; Kash.-*Winri*; H.-*Bhutiabadam*.

Nuts—tonic.

W. temperate Himalayas from Kashmir to Kumaon, 5,500-10,500 ft.; common in Kashmir forests.

CORYPHA (*Palmae*)

C. umbraculifera Linn.

S.-*Alpayushi*; Mal.-*Talippana*; Tel.-*Sritalamu*; B.-*Tali*; Tam.-*Talipannai*.

Fruits—pounded to a paste used for stupefying fish.

A kind of sago is extracted from the pith.

Malabar Coast, cultivated in Bengal and Andaman Islands. Grown in many parts of India as an ornamental plant.

COSCINIUM (*Menispermaceae*)

C. fenestratum (Gaertn.) Colebr.

S.-*Daru haridra*; H.-*Jhar-i-huldi*; B.-*Haldigach*; Tam. & Mal.-*Maramanjal*; Tel.-*Monu pasupu*.

Root—bitter, tonic, stomch., in dysen., antisep., used for dressing wounds and ulcers.

Wood—bitter tonic.

Decoct. of bark—in intermittent fevers.

Decoct. of stem—in snake-bite.

Berberine, saponin (*J. chem. Soc.*, 1867, 187; *Pharm. J.*, 1852, 188; *Bull. Inst. bot. Buitenz.*, 1902, 11; *Ber. dtsch. pharm. Ges.*, 1930, 314); stem contains berberine up to 3·5%, ceryl alcohol, hentriacontane, sitosterol, palmitic and oleic acids, sitosterol glucd., saponin and some resinous material (*Chem. Abstr.*, 1930, 3859; *Curr. Sci.*, 1943, 228).

S. India particularly in Western Ghats, the Nilgiris and Travancore.

COSMOSTIGMA (*Asclepiadaceae*)

C. racemosa Wight

Marathi-*Shendvel, Marvel*; Kan.-*Gharahuvoo*; Mal.-*Vattuvalli*.

Root bark—cholag., useful in dyspep. accompanied by fever.

Leaves—used to cure ulcerous sores.

Alk., glucd. (Dymock, Warden & Hooper, II, 450; Wehmer, II, 1004).

Sylhet, Chittagong, Konkan, North Kanara, Deccan and Carnatic.

COSTUS (*Zingiberaceae*)

C. speciosus (Koen.) Sm.

Bo.-*Kemuka*; H. & B.-*Keu*; S.-*Kushtha*; Tam.-*Kuravam*; Tel. & Kan.-*Chengalvakoshtu*.

Root—bitter, astrin., purg., depurative, stim., tonic, anthelm., used in snake-bite.

Root rich in starch (Burkill, I, 671).

More or less throughout India up to an altitude of 4,000 ft. Particularly common in Bengal and Konkan. Often cultivated as an ornamental plant.

COTONEASTER (*Rosaceae*)

C. bacillaris Wall. ex Lindl. = **C. affinis** Lindl. var. **bacillaris** (Lindl.) Schneid.

P.–*Khariz, Rau, Sichu*; Kash.–*Linu*; Garhwal–*Ruins*.

Stolons—considered astrin. in Indo-China.

Leaves yield 0·057% hydrocyanic acid (Wehmer, I, 438).

Temperate Himalayas, 4,000-8,000 ft., Murree, Kashmir to Nepal and the Salt Range.

C. microphylla Wall. ex Lindl.

Stolons—used as astrin. in Indo-China.

HCN-glucd. (*J. Pharm. Chim., Paris*, 1906, 537; *C. R. Acad. Sci., Paris*, 1906, 451); leaves contain sorbitol and a cyanogenetic glucd. prulaurasin; young twigs contain sorbitol and hydrocyanic acid (*Chem. Abstr.*, 1938, 621; Wehmer, I, 438).

Chamba and Bashahr States, 4,000-9,000 ft.

C. nummularia Fisch. & Mey; see **C. racemiflora** Koch

C. racemiflora Koch syn. *C. nummularia* Fisch. & Mey

Pers.–*Siah-chob*.

Plant—aper., expect., stomch.

Sugar chirkhestite (Dymock, Warden & Hooper, I, 585; *Pharm. J.*, 1889, 993); seeds contain hydrocyanic acid (*Chem. Abstr.*, 1930, 5796).

W. Tibet and Kashmir, 6,000-11,000 ft.

COTULA (*Compositae*)

C. anthemoides Linn.

H. & P.–*Babuna*; Kash.–*Tulobe*.

Plant—heated with oil applied externally in rheumatism.

Infusion—used as eye wash.

Decoct. of the plant—said to be beneficial for colds in the head and chest (Watt & Breyer-Brandwijk, 197).

Punjab, Upper Gangetic Plain, Bihar.

C. aurea Linn.; see **Matricaria aurea** Boiss.

CRAMBE (*Cruciferae*)

C. cordifolia Stev.

Plant—used as cure for itch.

North-west Himalayas, Kashmir and Baluchistan, at altitudes of 8,000-14,000 ft.

CRATAEGUS (*Rosaceae*)

C. oxyacantha Linn.

P.–*Ban-sangli, Ring*.

Liquid extract of fruits—cardiac tonic, remedy for organic and functional heart diseases such as dyspnoea, hypertrophy, vulvular insufficiency and heart oppression.

Oxalic acid (*Bot. Zbl.*, 1927, 11; N.F., 337); young shoots contain HCN-glucd. (*Öst. bot. Z.*, 1923, Nr. 1, 56, 69; *Chem. Abstr.*, 1928, 611); bitter substance crategin identical with esculin (*Arch. Pharm., Berl.*, 1937, 428; *Chem. Abstr.*, 1937, 8111); extracts have a paralyzing action on respiratory centre and is toxic to mammalian heart (*Quart. J. Pharm.*, 1940, 49; *Chem. Abstr.*, 1941, 2973); fresh fruits contain citric, tartaric and crataegus acids, pectin and fatty oil, glucose and fructose; seeds contain amygdalin and emulsin (*Chem. Abstr.*, 1946, 7311; Wehmer, I, 439); flowers contain essen. oil (0·157%), trimethylamine, quercitrin and quercitin; young shoots contain a cyanogenetic glucd. (Wehmer, I, 439; *Chem. Abstr.*, 1928, 611).

North-western temperate Himalayas, from Indus to Ravi, 6,000-9,000 ft.

CRATAEVA (*Capparidaceae*)

C. nurvala Buch.-Ham.

S.–*Varuna*; H. & B.–*Barun*; P.–*Barna*; Bo.–*Vayavarna*; Tam.–*Maralingam*; Tel.–*Magalingam*.

Bark—demulc., stomch., laxt., diur. antipyr., alter., tonic, useful in calculus affections, disorders of urinary organs and used in snake-bite.

Fresh leaves and root bark—rubft.

Bark contains saponin and tannin (Wehmer, I, 392; *J. Bombay. nat. Hist. Soc.*, 1939, 130).*

Almost all over India, wild or cultivated. Often found along streams, but also in dry, deep boulder formations in the sub-Himalayan tract.

C. religiosa Hook. f. & Thoms. non Forst. f.; see **C. nurvala** Buch.-Ham.

CRATOXYLUM (*Hypericaceae*)

C. cochinchinense (Lour.) Blume syn. *C. formosum* Benth. & Hook. f.

Decoct of the bark considered useful in colic and a resin from the bark used for itch (Burkill, I, 678).

A native of Andamans, occasionally planted in Calcutta gardens.

C. nerlifolium Kurz

In Tongking infusion of the leaves considered a powerful digestant.

Chittagong and Burma.

CREPIS (*Compositae*)

C. acaulis Hook. f.

Baked leaves or the root—ground and mixed with goat's milk taken to activate the secretion of milk in women.

Root—eaten raw in urinary complaints.

Subtropical Himalayas from Jammu to Bhutan, Lower Gangetic Plain, Madhya Bharat, Kanara and the Nilgiris.

CRESCENTIA (*Bignoniaceae*)

C. cujete Linn.

Ind. Baz.–*Kalabash*; H.–*Bilayati bel*; Tam.–*Tiruvottukkay*.

Fruit pulp—aper., cooling, diur., and febge., poisonous to birds and small mammals.

Decoct. of bark—used for cleaning wounds.

Leaves—pounded to a poultice applied for headache.

Fruit pulp contains crescentic, tartaric, citric and tannic acids (Dymock, Warden & Hooper, III, 124); chlorogenic acid (Wehmer, II, 1137); fixed oil obtained from the seeds is similar to peanut and olive oils (*Chem. Abstr.*, 1947, 2259).

A native of Tropical America, grown in gardens in the Bombay State.

CRESSA (*Convolvulaceae*)

C. cretica Linn.

H. & B.–*Rudravanti*; Bo.–*Khardi*; S.–*Rudanti*; Tel.–*Uppu-sanaga*.

Plant—tonic, aphrodis., expect. and antibil.

Leaves—tonic, aphrodis.

Alk. (Dymock, Warden & Hooper, II, 546).

Throughout India.

CRINUM (*Amaryllidaceae*)

C. asiaticum Linn.

S.–*Nagadamani*, *Vishamandala*; H.–*Pindar*; B.–*Barakanur*, *Nagdaun*; Bo.–*Nagdowan*; Tam.–*Vishamungil*; Tel.–*Vishamungali*; M.–*Vishamangil*.

Bulb—bitter, tonic, laxt., expect., used in biliousness and in strangury and other urinary troubles.

Fresh root—emetic, nauseant, diaphor.

Seeds—purg., diur., emmen., tonic.

Leaves—expect., applied to skin diseases and to reduce inflam.

Lycorin (*Bull. Jard. bot. Buitenz.*, 1920, 352); root contains alks. narcissine (lycorine), crinamine (*J. pharm. Soc. Japan*, 1937, 652; Henry, 1949, 406; *Chem. Abstr.*, 1939, 2653).

Throughout tropical India, wild or cultivated in gardens.

C. defixum Ker-Gawl.

B.–*Sukdarshan*; Bo.–*Nagdown*; M.–*Vishamungil*; Tel.–*Kesarchettu*.

Bulb—nauseant, emol., emetic, diaphor., used for the treatment of burns, whitlow, carbuncle, toxic to cattle.

Bulbs contain a toxic principle; minimum oral lethal dose is 1·75 g. per kg. of body weight; leaves devoid of toxic principle (*Indian J. vet. Sci.*, 1943, 65).

Swampy river banks throughout India, common on river banks and swampy places in Deccan and Bengal.

C. latifolium Linn.

H. & B.–*Sukh-darsan*; Bo.–*Gadambikanda*; S.–*Somavalli*, *Vrishakarni*; Tam.–*Vishamungil*.

Bulbs—crushed and roasted used as a rubft. in rheumatism, also applied to piles and abscesses to cause suppuration.

Juice of leaf—used in earache.

Throughout India. Wild or cultivated.

C. zeylanicum Linn.; see **C. latifolium** Linn.

CROCUS (*Iridaceae*)

C. sativus Linn.

S.–*Keshara*, *Kunkuma*; H.–*Kesar*, *Zafran*; Bo.–*Kessar*; B.–*Jafran*; Tam.–*Kungumapu*; Tel.–*Kunkumapuvu*; Kash.–*Kong*.

Dried stigmas and tops of the styles— used in fevers, melancholia and enlargement of the liver, stim., stomch., in catar. affections, as a colouring and flavouring agent and in snakebite.

Bulbs toxic to young animals, stigmas in overdoses, narcotic (*Indian J. agric. Sci.*, 1940, 40); saffron contains glucd.- crocin, crocetin, picrocrocin, essen. oil (*Pharm. J.*, 1908, 267; *Arch. Pharm., Berl.*, 1914, 139; *Ber. Schimmel u. Co., Lpz.*, 1919, 75; *Pharm. Zentralh.*, 1923, 148; *J. Pharm. Belg.*, 1928, 371; *Helv. chim. acta*, 1922, 376; 1927, 396; 1933, 643); also contains β & γ-carotene and lycopene (*Ber. dtsch. chem. Ges.*, 1933, 209; 1934, 344; Wealth of India, II, 372); Kashmir saffron contains 8·5-10·2% water and 5·9-13·3% ash (*J. Indian chem. Soc. industr.* . *Edn*, 1942, 135; *Chem. Abstr.*, 1943, 1831); pollen contains a crystalline glucd., yield 0·3-0·56% (*Ber. dtsch. chem. Ges.*, 1944, 196; *Chem. Abstr.*, 1945, 3283)*.

Cultivated in Pampur at 5,300 ft. in Kashmir.

CROSSANDRA (*Acanthaceae*)

C. infundibuliformis (Linn.) Nees syn. *C. undulaefolia* Salisb.

Ind. Baz.–*Priya-darsa*; Tam.–*Pavalakkurinja*; Tel.–*Gobbi*; Mal.–*Mannakkurinni*; M.–*Kanagambaram*.

Plant—aphrodis.

W. Peninsula. Cultivated in N. India and Bengal.

C. undulaefolia Salisb.; see **C. infundibuliformis** (Linn.) Nees

CROTALARIA (*Leguminosae*)

C. albida Heyne ex Roth

H.–*Ban methi*; Tel.–*Kondagiligichcha*.

Root—purg.

Hotter parts of India.

C. burhia Buch.-Ham.

P.–*Meini, Sis*; Bo.–*Sis, Sissai*; Marathi–*Ghagari*.

Leaves and branches—used as a cooling medicine.

Sind, Baluchistan, Punjab, Upper Gangetic Plain, Rajputana, Cambay, Gujarat, ascending up to 4,000 ft.

C. juncea Linn.

S.–*Sana*; H.–*Sunn*; B.–*Shonpat, Ghore sun*; Bo.–*Santag*; Tam.–*Sannappu*; Tel.–*Janumu*; Mal.–*Wuckoo nar.*

Seeds—used to purify blood, in impetigo; psoriasis, emmen., poisonous to livestock (*Bull. imp. Inst., Lond.*, 1921, 452; *Fmr's Bull. U.S. Dep. Agric.*, No. 1980).

Cultivated throughout India from the base of the Himalayas to Ceylon.

C. laburnifolia Linn.

H.–*Muna*; Tel.–*Pedda-galligista.*

Infusion of the whole plant—used as gargle for sore throat and inflam. of the mouth.

W. Peninsula, N. Circars, Ceylon and often cultivated in gardens for its large yellow flowers.

C. medicaginea Lam.

H. & P.–*Gulabi*; Marathi–*Jenjaru.*

Plant—officinal in the Punjab.

Seeds contain fat 6·76, protein 23·31 and carbohydrates 42·04% (*Proc. Indian Sci. Congr.*, 1944, 126).

Throughout India from the W. Himalayas to Ceylon and Burma.

C. mucronata Desv. syn. *C. striata* DC.

H.–*Sen, San*; Assam–*Jhunjhunia.*

Seeds—sometimes used as subst. for coffee.

Leaves contain an alk. poisonous to goats; seeds also contain a poisonous alk. but washed and cooked seeds are non-toxic (Wealth of India, II, 382).

Throughout India generally.

C. prostrata Rottl.

B.–*Chotojhunghyn*; Tel.–*Serigallygista.*

Root—used in derangements of the stomach and infantile diar.

Drier parts of India.

C. retusa Linn.

B.–*Bil-jhunjhun*; Bo.–*Ghagri*; H.–*Ghunghunian*; Tel.–*Potu-galli-gista.*

Plant—used in scabies and impetigo.

Alk. (*Ber. dtsch. chem. Ges.*, 1890, 3538; 1899, 214; *Arch. Pharm., Berl.*, 1899, 595); seeds contain toxic alk. monocrotaline (*J. Amer. chem. Soc.*, 1939, 2815; *Chem. Abstr.*, 1940, 437; Henry, 1949, 604); leaves contain indican (Wehmer, I, 531).

In the tropical regions of India from Himalayas to Ceylon, occasionally cultivated.

C. sericea Retz.; see **C. spectabilis** Roth

C. spectabilis Roth syn. *C. sericea* Retz.

S.–*Ghantarava*; H.–*Jhunjhunia*; B.–*Pipuli jhunjhun.*

Plant—used in scabies and impetigo, poisonous to livestock (Dragendorff, Heilpflanzen, 312).

Seeds, leaves and stems contain monocrotaline; it lowers blood pressure in dogs; lethal dose for chickens 65 mg./kg. (*J. Amer. chem. Soc.*, 1935, 2560; *Chem. Abstr.*, 1936, 1182); alk. monocrotaline toxic to livestock (*Circ. La agric. Exp. Sta.*, 1945, 4; *Chem. Abstr.*, 1946, 6681); seeds contain 3·2% alk. monocrotaline (*J. Amer. chem. Soc.*, 1939, 2815; *Chem. Abstr.*, 1940, 437); plant toxic to cattle under field and experimental conditions and fatal to chickens under experimental conditions; monocrotaline found in all parts of immature plants and highly concentrated in seeds (*J. Amer. vet. med. Ass.*, 1946, 69; *Chem. Abstr.*, 1946, 5138).

Tropical region throughout India.

C. striata DC.; see **C. mucronata** Desv.

C. trifoliastrum Willd.

Root—purg.

Assam, N. Circars and Carnatic, from Ganjam to Madras.

C. verrucosa Linn.

S.–*Shanapushpi*; H.–*Banshana, Jhunjhunia*; B.–*Jhanjhana*; Bo.–*Tirat*; Tel.–*Ghelegherinta.*

Juice of leaves—used in scabies and impetigo both internally and externally; considered efficacious in diminishing salivation.

In the tropical region of India from Himalayas to Ceylon.

CROTON (*Euphorbiaceae*)

C. aromaticus Linn.

M.–*Vidpune.*

Said to be used medicinally.

The Deccan Peninsula, from Konkan southwards.

C. caudatus Geisel.

B.–*Nanbhantur*; Nep.–*Halongre.*

Leaves—applied as poultice to sprains.

E. Himalayas, Assam, Bengal to the Deccan.

C. joufra Roxb.

B.–*Joufra.*

Leaves, seeds, and root are occasionally spoken of as used medicinally.

Bark—used in veterinary medicine.

Sylhet, Sibsagar.

C. malabaricus Bedd.

Said to be used medicinally.

Malabar; common in western forests, ascending to 4,000 ft.

C. oblongifolius Roxb.

B.–*Baragach*; H.–*Chucka*; Bo.–*Ganasur*; S.–*Bhutankusa*; Tam.–*Milgunari*; Tel.–*Bhutankusamu.*

Bark, root, fruits and seeds—purg., in snake-bite.

Bark and root—alter.

Bark—used in external applications for sprains, useful in liver diseases.

Seeds contain a fatty oil similar to *C. tiglium* (Wehmer, II, 672).

Sub-Himalayan tract from Oudh eastwards, Bengal, Sylhet, Chota Nagpur, Central, W. and S. India.

C. polyandrus Roxb.; see **Baliospermum montanum** Muell.-Arg.

C. reticulatus Heyne

Marathi–*Pandhari*; Bo.–*Panduray.*

Bark—used as a bitter stomch.

Deccan Peninsula from the Konkan southwards.

C. tiglium Linn.

S.–*Jayapala*; H. & Bo.–*Jamalgota*; B.–*Jaypal*; Tam. & Mal.–*Nervalam*; Tel.–*Nepala.*

Seeds and oil—drastic purg., irrit., rubft., cath., fish poison, in snake-bite.

Wood—diaphor. in small doses and purg. and emetic in large doses.

(*J. Pharm. Chim., Paris*, 1898, 524; *J. chem. Soc.*, 1864, 195; *Pharm. J.*, 1905, 479; *Arch. exp. Path. Pharmak.*, 1915, 138; 1930, 115); seed kernels contain 55-57% croton oil; the poison occurs to the extent of 2-3% in the fatty acids (*Helv. chim. acta*, 1942, 569; *Chem. Abstr.*, 1942, 6500); the oil amounts to 30-45% of the whole seed or 43-63% of the kernel (Wealth of India, II, 383); purg. effect may also follow the application of oil to the skin; oil contains a toxic resin; in addition to the vesic. and purg. principles which pass into the oil, the seed kernels contain 2 toxic proteins, croton globulin and croton albumin, sucrose and a glycoside, crotonoside (Thorpe, III, 434).

Naturalized and cultivated in Bengal, Assam and South India. Also cultivated in gardens in other parts of India.

CRYPTOCARYA (*Lauraceae*)

C. wightiana Thw.

S.–*Neela vriksha*; Tam.–*Palai*; Mal.–*Katamampari.*

Leaves—ground and boiled in oil applied in elephantiasis.

Powdered bark and leaves—taken with sugar as cure for rheumatism and swellings (Rama Rao, 340).

Western Ghats from Kanara southwards to Ceylon.

CRYPTOCORYNE (*Araceae*)

C. spiralis Fisch.

Tam.–*Nattativadayam*; Tel.–*Natti-ativasa.*

Rhizome—in combination with other drugs used in infantile vomiting and cough and for fever and abdominal complaints in adults.

From Khandesh to N. Kanara, Calicut, Coromandel Coast, Bengal.

CRYPTOLEPIS (*Asclepiadaceae*)

C. buchanani Roem. & Schult.

H.–*Karanta*; Tel.–*Adavipalatige, Rokallipala*; Mal.–*Kalipalvalli.*

Leaves—toxic.

Plant—used in a preparation given to children as a cure for rickets.

Plant yields a latex (*Indian For. Leafl.*, No. 70, 1944, 9).

Throughout India.

CRYPTOSTEGIA (*Asclepiadaceae*)

C. grandiflora (Roxb.) R. Br.

Bo.–*Vilayti-vakhandi*; Tam.–*Palai*; Mal.–*Pala.*

Leaves—toxic

Plant contains rubber (Dymock, Warden & Hooper, II, 426; Wealth of India, II, 387; *Amer. J. Bot.*, 1945, 619; *Curr. Sci.*, 1943, 154; *Chem. Abstr.*, 1943, 6489; 1945, 3037; *Bot.*

Gaz., 1944-45, 333; *Indian J. Pharm.*, 1945, 75).

Largely cultivated in gardens throughout India. Has become naturalized in the Bombay and Madras States and certain places in the Punjab, Uttar Pradesh, Delhi, etc.

CUCUBALUS (*Caryophyllaceae*)

C. bacciferus Linn.

Decoct. of herb—used in Spain to check haemor.

Temperate Himalayas from Kashmir at 5,000-8,000 ft. to Sikkim at 8,000-12,000 ft.; Khasia Hills, at Boga Pani at 5,000 ft.

CUCUMIS (*Cucurbitaceae*)

C. melo Linn.

S., H. & Bo.–*Kharbuja*; B.–*Kharmuj*; Tam.–*Mulampazham*; Tel.–*Kharbuja-dosa.*

Seeds—cooling, nutri., diur.

Pulp of fruit—diur., useful in chr. eczema.

(*J. biol. Chem.*, 1923, 790); analysis of fruit (*Nutrit. Charts*, Heinz & Co., 1942, 23); seed kernel rich in oil; component fatty acids of the oil (*J. Indian chem. Soc.*, 1945, 337; 1945, 123; *J. sci. industr. Res.*, 1950, 230B).

Extensively cultivated throughout India particularly in the hot and dry north-western areas.

C. melo var. **momordica** Duthie & Fuller

B.–*Phuti*; H.–*Phut*; S.–*Ervaru.*

Seeds—used as a cooling medicine.

Cultivated in many parts of India.

C. melo var. **utilissimus** Duthie & Fuller syn. *C. utilissimus* Roxb.

B.–*Kakur*; Bo.–*Kakadi*; H.–*Kakri*; S.–*Bahukanda.*

Seeds—cooling, nutri., diur., used in painful micturition and suppression of urine (*Ann. Bot., Lond.*, 1892, 195).

Cultivated in many parts of India, specially in upper India and particularly in Uttar Pradesh and Punjab.

C. momordica Roxb.; see **C. melo** var. **momordica** Duthie & Fuller

C. prophetarum Linn.

H.–*Kharindroyan*; Marathi–*Kanteindrayan*; S.–*Aindri.*

Plant—emetic, purg.

Fruit pulp contains bitter resinous body, myriocarpin which produces nausea and is slightly purg. (Watt & Breyer-Brandwijk, 181; U.S.D., 1376).

Wild on wastelands in Sind, Baluchistan, Merwara, Rajputana, Deccan, in dry districts, Bellary.

C. pseudo-colocynthis Royle; see **C. trigonus** Roxb.

C. sativus Linn.

S.–*Sukasa*; H. & B.–*Khira*; Bo.–*Kakri, Kankri*; Tam.–*Vellarikkai*; Tel.–*Dosakaya.*

Fruit—nutri., demulc.

Seeds—cooling, tonic, diur.

Fruits contain an enzyme erepsin (*C. R. Acad. Sci., Paris*, 1905, 320; *Biochem. Z.*, 1929, 109; *Ber. dtsch. bot. Ges.*, 1928, 582); analysis of fruit, vitamin B_1 and C (*Hlth Bull.*, No. 23, 1941, 32); proteolytic enzymes, ascorbic acid oxidase, succinic and malic dehydrogenases present in fruit (*Indian J. med. Res.*, 1933, 17; *Curr. Sci.*, 1936-37, 296; *J. Indian chem. Soc.*, 1943, 277); odorous principle is extractable with alcohol (*J. sci. industr. Res.*, 1950, suppl., 242).

Cultivated in all parts of India.

C. trigonus Roxb. syn. *C. pseudo-colocynthis* Royle

S.–*Vishala*; B.–*Gomuk*; H.–*Bislambhi*; Tam.–*Kattutumatti*; Tel.–*Adavi-puchcha.*

Pulp of fruit—bitter, drastic purg.

Decoct. of roots—milder in purg. action.

Seeds—cooling, astrin., useful in bilious disorders.

Root and leaves—used in snake-bite. (*Pharm. J.*, 1907, 117).

Wild throughout the drier upland tracts of India.

C. utilissimus Roxb.; see **C. melo** var. **utilissimus** Duthie & Fuller

CUCURBITA (*Cucurbitaceae*)

C. maxima Duch.

H.–*Mithakaddu, Sitaphal*; B.–*Saphuri komra*; Bo.–*Lal bhopali*; Tam.–*Parangikayi*; Tel.–*Gummadi*; Mal.–*Mathan.*

Seeds—anthelm., used as taenicide, diur. and tonic.

Oil—nerve tonic.

Fruit pulp—used as poultice, applied to burns, inflam. and boils.

Saponin (*Kew Bull.*, 1909, 397; *J. Amer. chem. Soc.*, 1896, 609); curcubitin, lutein (*Bull. chem. Soc. Japan*, 1931, 221; *Ber. dtsch. chem. Ges.*, 1934, 824); analysis of fruit (*Hlth Bull.*, No. 23, 1941, 33).

Cultivated throughout India.

C. pepo Linn.

S.–*Kurkaru*; H.–*Kumra, Safed kaddu*; B.–*Shada kumra*; Bo.–*Kaula*; Tam.–*Suraikayi.*

Seeds—anthelm., useful as taenicide.

Leaves—external application for burns.

As—0·009 mg. in 100 g. fruit (*C. R. Acad. Sci., Paris*, 1912, 893; *Chem. Zbl.*, 1912, I, 1730; *J. chem. Soc.*, 1913, 399; *J. Amer. chem. Soc.*, 1910, 346; *Pharm. Post*, 1918, 561; *Hoppe-Seyl. Z.*, 1926, 286); vitamin C (*J. Amer. pharm. Ass.*, 1931, 555; *Chem. Zbl.*, 1934, II, 2097); analysis of fruit (*Hlth Bull.*, No. 23, 1941, 34); a resinous substance, phytostearin, and salicyclic acid present in seeds (Wehmer, II, 1203); seeds contain a crystalline globulin which can be used as a subst. for edesten (*Chem. Abstr.*, 1941, 7987); active constituents are said to be located in the embryo and green membrane and resinous in character (U.S.D., 1560).

Cultivated in many parts of India.

CUMINUM (*Umbelliferae*)

C. cyminum Linn.

S.–*Jiraka*; H.–*Jira, Zira*; B.–*Jira*; Tam.–*Shiragam*; Tel.–*Jiraka*; Mal.–*Jorekam*.

Fruit—stomch., stim., carmin., astrin., useful in dyspep. and diar., used in cookery, in veterinary medicine.

Seeds—in snake-bite.

Essen. oil (*J. Indian Inst. Sci.*, 1925, 182A; Parry, I, 311; *Bull. imp. Inst., Lond.*, 1917, 302; *Analyst*, 1904, 78); fruit—cuminol (*An. Soc. esp. Fis. Quim.*, 1933, 189; *Ber. Schimmel u. Co., Lpz.*, 1934, 16); analysis of seeds (*Hlth Bull.*, No. 23, 1941, 36).

Cultivated throughout India except Bengal and Assam. The chief areas are reported to be Uttar Pradesh and Punjab.

CUPRESSUS (*Cupressaceae*)

C. sempervirens Linn.

H.–*Sara, Saras*; Bo.–*Saruboke*; S.–*Surahva*; Tam. & Mal.–*Suram, Churam*.

Wood and fruits—astrin., anthelm.

Essen. oil (*Trud. nauch. khim.-farm. Inst., Mosk.*, 1925, 93); leaves yield essen. oil 2·0% containing 80% α-pinene (*Amer. Perfum*, 1932, 319; *Ann. Chim. appl., Roma*, 1934, 247); wood yields 2·55% essen. oil (*Parfums de Fr.*, 1936, 103; *Chem. Abstr.*, 1936, 4625); essen. oil from leaves has vermifuge properties (*Boll. Soc. ital. Biol. sper.*, 1939, 703; *Chem. Abstr.*, 1940, 1741).*

The tree is a variety only known in the cultivated state in N.W. India. The wild form is a native of Asia Minor, Syria and N. Persia.

CURANGA (*Scrophulariaceae*)

C. amara Juss.; see **C. fel-terrae** Merr.

C. fel-terrae Merr. = **C. melissifolia** Juss. syn. *C. amara* Juss.

Plant—used as febge.

Glucd. curangin with properties similar to digitalin present in the plant (*J. chem. Soc.*, 1900, 304; *Meded. PlTuin, Batavia*, 1897, 73; 1899, 135; *Chem. Zbl.*, 1899, II. 991, 1125; 1900, I. 298; Wehmer, II, 1122).

Sikkim Himalayas, Assam, Mishmi, Cachar and Chittagong.

CURCULIGO (*Amaryllidaceae*)

C. orchioides Gaertn.

S.–*Talamulika*; H. & Bo.–*Kalimusli*; B.–*Talamuli*; Tel.–*Nelatatygadda*; Tam.–*Nilappanaik-kilhangu*.

Rhizome—prescribed in piles, jaundice, asthma, diar., gonor., considered demulc., diur., tonic, aphrodis., used as poultice for itch and skin diseases.

Sub-tropical Himalayas from Kumaon eastwards and in the Western Ghats from Konkan southwards.

CURCUMA (*Zingiberaceae*)

C. amada Roxb.

S.–*Karpura-haridra*; H.–*Amhaldi*; B.–*Amada*; Gujarati–*Amba-haldara*; Tam.–*Mangai inji*; Tel.–*Mamidiallam*.

Rhizome—carmin., stomch., cooling, applied over contusions and sprains.

Rhizomes yield 1·1% essen. oil containing d-α-pinene 18%, ocimene 47·2%, linalool 11·2%, linalyl acetate 9·1%, safrole 9·3% (*Indian Soap J.*, 1941, 200; *Chem. Abstr.*, 1941, 6393).

Wild in parts of Bengal, Konkan and Madras.

C. angustifolia Roxb.

S.–*Tavakshira*; H. & B.–*Tikhur*; Bo.–*Tickar*; Tam.–*Kua*; Tel.–*Ararutgaddalu*.

Rhizome—demulc., nutri., contains starch which is used as subst. for the true arrowroot powder from *Maranta arundinacea* Linn.

Outer ranges of Central Himalayas, W. Bihar, N. Bengal, extending to Bombay and S. India. Also cultivated to a small extent.

C. aromatica Salisb.

S.–*Vana-haridra*; H.–*Jangli haldi*; B.–*Banhalud*; Bo.–*Ran hald*; Tam.–*Kasturi-manjal*; Tel.–*Kasturi-manjal*.

Rhizome—tonic, carmin., externally applied in combination with astringents, bitters and aromatics to bruises and sprains, and to promote eruptions, in snake-bite.

Rhizomes yield 6·1% essen. oil (*J. chem. Soc.*, 1928, 2496; *J. Indian Inst. Sci.*, 1926, 140 A); colouring matter curcumin (*J. Soc. chem. Ind., Lond.*, 1928, 54T).*

Wild throughout India, and cultivated chiefly in Bengal and Travancore.

C. caesia Roxb.
H.–*Kalihaldi, Narkachura*; B.–*Kalahaldi*; Bo.–*Narkachura*; Tel.–*Manupasupu.*

Rhizome—arom., stim., carmin., used externally for sprains and bruises.

Dry tubers contain 1·6% essen. oil containing *d*-camphor 76·6% (*Indian Soap J.*, 1940, 248; *Chem. Abstr.*, 1940, 6015; *Proc. nat. Acad. Sci. India*, vol. 10, 1940, 64).

A native of Bengal where it is cultivated to some extent.

C. leucorhiza Roxb.
B.–*Tikar.*

Yields a form of arrowroot.

Bihar, jungles south of Bhagalpur.

C. domestica

B.–*Gandhabena*; H.–*Gandhatrin*[illegible] *Khawi*; S.–*Bhustrina*; Tam.–*Vasanappillu*; Tel.–*Nimmagaddi*; Mal.–*Vasanappillu.*

Infusion of leaves—sudorific, stim., antiper., in catarrh.

Oil—carmin., in cholera.

Essen. oil (*Pharm. J.*, 1923, 660; *Ber. Schimmel u. Co., Lpz.*, 1915, Oct., 35; 1922, 43; *Perfum. essent. Oil Rec.*, 1926, 88); citral is the principal constituent of the essen. oil, the percentage of citral varying with locality (Parry, I, 73); essen. oil content varies with the age of the grass; optimum age 18-24 months giving oil with citral content 71-75·5% (*Parfum. mod.*, 1937, 25; *Chem. Abstr.*, 1937, 2749); fresh lemon grass contains 0·26-0·52% essen. oil containing 78-85·5% citral (*Rep. P. R. agric. Exp. Sta.*, 1940, 29; *Chem. Abstr.*, 1942, 5614); dry material yields 0·4% essen. oil containing 72·3% citral (*Rev. Fac. Cienc. quim. La Plata*, 1946, 7; *Chem. Abstr.*, 1947, 2210).

Grown in gardens in the Punjab, Bombay and Baroda. Reported to grow wild in Mysore.

C. jwarancusa Schult. syn. *Andropogon jwarancusa* Jones
B.–*Karankusa*; Bo.–*Izkhir*; H. & P.–*Lamjak*; S.–*Lamajjaka.*

Grass—used to purify blood and in coughs, chr. rheumatism and cholera; arom. tonic in dyspep.; stim. and sudorific in gout, fever and rheumatism.

Flowers—styptic.

Essen. oil (*Ber. Schimmel u. Co., Lpz.*, 1892, April, 44; *J. chem. Soc.*, 1921, 1644; [illegible]

C. pseudomontana Grah.
Konkan–*Sinderwani.*

Yields a form of arrowroot.

Konkan and Anamalai hills.

C. rubescens Roxb.
Yields a form of arrowroot.

Bengal.

C. zedoaria Rosc.
S.–*Sati*; H., B. & Bo.–*Kachura*; Tam.–*Kichili-kizhanghu*; Mal.–*Pula-kizhanna*; Tel.–*Kachoram.*

Rhizome—stomch., cooling, diur., arom., stim., carmin., applied to bruises and pains; decoct. along with pepper, cinnamon and honey beneficial for colds.

Essen. oil (*Philipp. J. Sci.*, 1909, 132; *Ber. Schimmel u. Co., Lpz.*, 1911, April, 50; *J. Soc. chem. Ind., Lond.*, 1928, 171T).

Said to be wild in the eastern Himalayas and in the moist deciduous forests of the coastal tract of Kanara. Cultivated more or less throughout India.

CUSCUTA (*Convolvulaceae*)

C. chinensis Lam.
Sing.–*Agamulanetirvel.*

Properties similar to *C. reflexa.*

Seeds—tonic, diaphor., demulc.

Greater part of India.

C. hyalina Roth
H.–*Niradhari*; Marathi–*Nirmuli.*

Plant—boiled in water is taken against pain in chest.

W. Peninsula and Baluchistan.

C. reflexa Roxb.
S.–*Amaravela*; H.–*Akasbel*; B.–*Algusi*; Marathi–*Nirmuli*; P.–*Amil, Nilathari*; Tel.–*Sitamma pogu nalu.*

Seeds—carmin., anthelm., alter.

Plant—purg., used externally against itch, internally in protracted fevers.

Infusion of plant—used as a wash for sores.

Stems—useful in bilious disorders.

Plant contains cuscutalin and cuscutin; cuscutalin pharmacologically potent drug; seeds contain pigments amarbelin and cuscutin and a wax and yield a semi-drying oil (*J. Indian chem. Soc.* 1935, 384, 587; *Chem. Abstr.*, 1936, 459; *J. Indian chem. Soc.*, 1936, 264, 531; *Chem. Abstr.*, 1936, 6327; *Proc. nat. Acad. Sci. India*, vol. 10, 1940, 68).

A parasitic climber common throughout the plains of India, ascending the hills up to 8,000 ft.

CYAMOPSIS (*Leguminosae*)

C. tetragonoloba Taub.
Bo.–*Gauri*; H.–*Gowar*; S.–*Bakuchi*; P.–*Guar, Kulti*; Tam.–*Kothaveray*; Tel.–*Gorchikudu.*

Fruit—laxt., in biliousness and night-blindness.

Analysis of pods (*Hlth Bull.*, No. 23, 1941, 32).

Cultivated in many parts of India.

CYANOTIS (*Commelinaceae*)

C. axillaris Roem. & Schult. f.

H.–*Soltraj*; Bo.–*Itsaka*; Tam.–*Nirpulli*; Tel.–*Golagandi*.

Plant—used as a remedy in tympanitis and as external application in ascites.

Throughout India in the plains from the Upper Gangetic valley to Assam and southwards to Ceylon.

C. tuberosa Schult. f.

Santh.–*Meromchunchi*.

Root—used in continued fevers and for worms in cattle.

Chota Nagpur and the Deccan Peninsula on the west side from Konkan to Travancore.

CYATHULA (*Amaranthaceae*)

C. prostrata Blume

Decoct. of roots—given for dysen. in Malaya.

Plant—used in external applications for various skin complaints (Burkill, I, 718).

Bengal, Assam, Sikkim, Deccan Peninsula and Ceylon.

CYCAS (*Cycadaceae*)

C. circinalis Linn.

H.–*Jangli-madan-mast-ka-phul*; S.–*Varaguna*; Tam.–*Canningay*, *Madanagama*; Tel.–*Kamkshi*; Mal.–*Intalappana*.

Pollens—narcotic.

Bark and seeds—ground to a paste with coconut oil, used as poultice for sores and swellings.

Juice of tender leaves—useful for flatulence and vomiting.

Seeds contain starch, a toxic glucd., pakoein, phytosterin and a reducing sugar (*Pharm. Weekbl.*, 1903, 309; Burkill, I, 720; Wehmer, I, 1).*

Wild in S. India on Malabar Coast, dry hills in W. Madras to 3,500 ft. and Orissa. Occasionally grown in Indian gardens.

C. revoluta Thunb.

Tam.–*Madanagameswari*.

Plant—considered expect., tonic, nutri.

Yields sago; colouring matter (*Apothekerzig, Berl.*, 1894, 711); fatty acids: palmitic, stearic oleic, behenic acids (*Chem. Abstr.*, 1950, 5618).

Commonly cultivated in Indian gardens.

C. rumphii Miq.

Tam.–*Kama*; Tel.–*Ranaguvva*, *Waragudu*; Mal.–*Todda-maram*.

Resin—applied to malignant ulcers.

Scales—anodyne.

A type of sago is extracted from the trunk.

Found in Bengal, South India and Andaman Islands. Often cultivated in Indian gardens.

CYCLAMEN (*Primulaceae*)

C. europaeum Linn.

H.–*Hathajooree*.

Corms—drastic cath.

Active principle cyclamin, a glycosidal saponin (U.S.D., 1420).

Europe and Caucasia.

C. persicum Miller

Ind. Baz.–*Bakhuri-miryam*.

Emetic, emmen., purg., diur., fish-poison, antid. to snake-poison.

Glucd. saponin cyclamin (*Ber. dtsch. chem. Ges.*, 1879, 374; *Arch.*, Used as poultice for itch and skin diseases.

Sub-tropical Himalayas from Kumaon eastwards and in the Western Ghats from Konkan southwards.

CURCUMA (*Zingiberaceae*)

C. amada Roxb.

S.–*Karpura-haridra*; H.–*Amhaldi*; B.–*Amada*; Gujarati–*Amba-haldara*; Tam.–*Mangai inji*; Tel.–*Mamidiallam*.

Rhizome—carmin., stomch., cooling, applied over contusions and sprains.

Rhizomes yield 1·1% essen. oil containing d-α-pinene 18%, ocimene 47·2%, linalool 11·2%, linalyl acetate 9·1%, safrole 9·3% (*Indian Soap J.*, 1941, 200; *Chem. Abstr.*, 1941, 6393).

Wild in parts of Bengal, Konkan and Madras.

C. angustifolia Roxb.

S.–*Tavakshira*; H. & B.–*Tikhur*; Bo.–*Tickar*; Tam.–*Kua*; Tel.–*Ararutgaddalu*.

Rhizome—demulc., nutri., contains starch which is used as subst. for the true arrowroot powder from *Maranta arundinacea* Linn.

Outer ranges of Central Himalayas, W. Bihar, N. Bengal, extending to Bombay and S. India. Also cultivated to a small extent.

C. aromatica Salisb.

S.–*Vana-haridra*; H.–*Jangli haldi*; B.–*Banhalud*; Bo.–*Ran hald*; Tam.–*Kasturi-manjal*; Tel.–*Kasturi-manjal*.

Rhizome—tonic, carmin., externally applied in combination with astringents, bitters and aromatics to bruises and sprains, and to promote eruptions, in

Root—astrin., used in form of a decoct. as a remedy for dysen. and leucor.; also applied externally along with other drugs to reduce tumours.

Root contains about 10% tannin (*Indian For. Leafl.*, No. 72, 1944, 8).

Madhya Pradesh, West and South India.

CYMBALARIA (*Scrophulariaceae*)

C. muralis Gaertn., Mey. & Schreb. syn. *Linaria cymbalaria* Mill.
Plant—used in diabetes.
Europe.

CYMBIDIUM (*Orchidaceae*)

C. aloifolium Swartz
Plant—emetic, purg., furnishes salep which is used as a nutrient and demulc.
Nepal, the Terai, and tropical Himalayas, eastwards to Sikkim and W. and S. India.

CYMBOPOGON (*Gramineae*)

C. citratus (DC.) Stapf syn. *Andropogon citratus* DC.
B.–*Gandhabena*; H.–*Gandhatrina*; P.–*Khawi*; S.–*Bhustrina*; Tam.–*Vasanappillu*; Tel.–*Nimmagaddi*; Mal.–*Vasanappillu.*
Infusion of leaves—sudorific, stim., antiper., in catarrh.
Oil—carmin., in cholera.
Essen. oil (*Pharm. J.*, 1923, 660; *Ber. Schimmel u. Co., Lpz.*, 1915, Oct., 35; 1922, 43; *Perfum. essent. Oil Rec.*, 1926, 88); citral is the principal constituent of the essen. oil, the percentage of citral varying with locality (Parry, I, 73); essen. oil content varies with the age of the grass; optimum age 18-24 months giving oil with citral content 71-75·5% (*Parfum. mod.*, 1937, 25; *Chem. Abstr.*, 1937, 2749); fresh lemon grass contains 0·26-0·52% essen. oil containing 78-85·5% citral (*Rep. P. R. agric. Exp. Sta.*, 1940, 29; *Chem. Abstr.*, 1942, 5614); dry material yields 0·4% essen. oil containing 72·3% citral (*Rev. Fac. Cienc. quim. La Plata*, 1946, 7; *Chem. Abstr.*, 1947, 2210).
Grown in gardens in the Punjab, Bombay and Baroda. Reported to grow wild in Mysore.

C. jwarancusa Schult. syn. *Andropogon jwarancusa* Jones
B.–*Karankusa*; Bo.–*Izkhir*; H. & P.–*Lamjak*; S.–*Lamajjaka.*
Grass—used to purify blood and in coughs, chr. rheumatism and cholera; arom. tonic in dyspep.; stim. and sudorific in gout, fever and rheumatism.
Flowers—styptic.
Essen. oil (*Ber. Schimmel u. Co., Lpz.*, 1892, April, 44; *J. chem. Soc.*, 1921, 1644; 1922, 2292; 1923, 2267; *Bull. imp. Inst., Lond.*, 1924, 265; *Indian For. Rec.*, 1922, 111); grass yields about 1% essen. oil; oil from the grass grown in Hazara district contains 90% of *d*-piperitone (Wealth of India, II, 416); oil from the grass grown in Sind contains 44% ketone (*Indian For. Rec.*, 1922, 128).*
Himalayas from Kashmir to Assam, ascending up to 10,800 ft., and in the north-western plains, reaching down to Bombay.

C. nardus (Linn.) Rendle syn. *Andropogon nardus* Linn.
B.–*Kamakher*; H.–*Ganjni*; S.–*Guchcha*; Tam.–*Kamachipillu*; Tel.–*Kamkshikasuvu*; Mal.–*Kamakshi-pillu.*
Infusion of leaves—stomch., carmin.
Oil—stim., carmin., antisp., diaphor., sudorific, rubft.
Essen oil (*Bull. imp. Inst., Lond.*, 1910, 144; *Ber. Schimmel u. Co., Lpz.*, 1913, 19; *Chem. & Drugg.*, 1919, 815); Ceylon citronella grass yields 0·4% essen. oil containing geraniol 57·6-61·1%, citronellal 7·7-14·2% (*Soap sanit. Chem.*, 1940, No. 9, 30; No. 10, 32; *Chem. Abstr.*, 1941, 6387); Java citronella grass yields an oil much superior (total geraniol not less than 85% including not less than 35% citronellal) to that of Ceylon citronellal (*Soap sanit. Chem.*, 1942, No. 2, 24; No. 3, 25; *Chem. Abstr.*, 1943, 1832).
Throughout the hotter parts of India wild or cultivated.

C. schoenanthus (Linn.) Spreng. syn. *Andropogon schoenanthus* Linn.
B.–*Gandhabena*; Bo.–*Rohisha*; H.–*Rousaghas*; S.–*Bhutika*; M.–*Shakanarupillu.*
Plant—arom., stim.
Decoct. of grass—febge.
Oil—applied in rheumatism and neuralgia.
Essen. oil (*Ber. Schimmel u. Co., Lpz.*, 1911, April, 19; Oct., 17; *J. chem. Soc.*, 1922, 144; 1923, 2267).
Hotter parts of India, wild or cultivated, from the Punjab to Burma and southwards to Travancore.

CYNANCHUM (*Asclepiadaceae*)

C. arnottianum Wight
Baluchistan–*Bhankalink.*
Leaves—dried in shade, ground into powder, used to kill maggots in wounds of animals.
Plant—insecticidal (*Indian J. agric. Sci.*, 1940, 33).
Baluchistan and Kashmir at 6,000-8,000 ft.

C. vincetoxicum Pers.
Plant—poisonous.
Root—emetic.
Glucd. vincetoxin separated from the roots (*Arch. Pharm., Berl.*, 1908, 660); root, root-stock and seed contain 0·3-0·4% glucd. vincetoxin; it is slightly toxic and induces haemolysis (*Arch. Pharm., Berl.*, 1938, 431; *Chem. Abstr.*, 1939, 1090); seeds contain a water-soluble

active principle which, like digitalis, affects the frog's heart (U.S.D., 1645).

Temperate Himalayas, from Kashmir to Sikkim at 7,000-11,000 ft.

CYNARA (*Compositae*)

C. scolymus Linn.

H. & B.–*Hathichak, Hathichoke.*

Leaves—bitter, considered diur., useful in dropsy and rheumatism (U.S.D., 1421).

Flower heads contain inulin very valuable in the diet of the diabetics (Purewal, 56); analysis of heads (*Hlth Bull.*, No. 23, 1941, 32).

A perennial herb cultivated to a limited extent throughout India.

CYNODON (*Gramineae*)

C. dactylon (Linn.) Pers.

B.–*Dubh, Durba*; H.–*Dhub, Hariali*; S.–*Dhurva, Haritali*; Marathi–*Haryali*; Tel.–*Harvali*; Tam.–*Arugampullu.*

D ecoct. of root—diur., in dropsy, in secondary syphilis.

Infusion of root—for stopping bleeding from piles.

Crushed roots—mixed with curds used in chr. gleet.

Juice of plant—astrin., used as application to fresh cuts and wounds, diur., used in dropsy and anasarca, in hysteria, epilepsy, insanity, astrin. in chr. diar. and dysen.; useful in catar. ophthalmia.

Analysis of grass (*Misc. Bull. imp. Coun. agric. Res. India*, No. 25, 1946, appx. I, III).

Throughout India ascending to 8,000 ft. in the Himalayas.

CYNOGLOSSUM (*Boraginaceae*)

C. glochidiatum Wall.; see **C. wallichi** G. Don

C. micranthum Desf.

S.–*Adhopuspi*; P.–*Nilakrai*; Bo.–*Oudhuphule.*

Plant—officinal in the Punjab.

Northern India and the Himalayas from Kashmir to Bhutan up to an altitude of 8,000 ft.

C. wallichi G. Don syn. *C. glochidiatum* Wall.

Assam–*Dhalabrauisabla.*

Juice of root—used to stop vomiting of infants.

Kashmir, Sikkim, Assam, W. Peninsula.

CYNOMETRA (*Leguminosae*)

C. cauliflora Linn.

Mal.–*Iripa*; Ceylon–*Nam-nam.*

Oil prepared from the seeds—applied externally in leprosy and cutaneous diseases.

Possibly yields copal resin.

Sometimes cultivated in Indian gardens.

C. ramiflora Linn.

B.–*Shingr*; S.–*Madhuka*; Mal.–*Irripa*; Tam.–*Irudbu.*

Root—cath., purg.

Leaves—made into a lotion by boiling in cow's milk and mixed with honey used as external application in leprosy, scabies and cutaneous diseases.

Oil from the seeds—applied extarnally in leprosy, scabies and cutaneous diseases.

Tidal forests of south India, Sundarbans, Andamans, Ceylon. Often cultivated in gardens.

CYPERUS (*Cyperaceae*)

C. articulatus Linn.

Tuber—tonic, stim.

Odorous principle possessing fixative power (*Parfum. mod.*, 1937, 25; *Chem. Abstr.*, 1937, 2749).

Bengal to Ceylon on the banks of rivers and lakes.

C. esculentus Linn.

H.–*Chichoda*; P.–*Kaseru*; S.–*Kaseruka.*

Tuber—stim., aphrodis.

Tubers yield 20-28% of oil with pleasant taste and flavour (Wealth of India, II, 424; *Ber. dtsch. pharm. Ges.*, 1902, 145). Due to high oil content of tubers, the flour made from them is a high calorie food (*Chem. Abstr.*, 1947, 2820).

Upper Gangetic Plain, from the Punjab to the Nilgiri Hills and Anamalais, scattered.

C. inundatus Roxb.; see **Juncellus inundatus** C.B. Clarke

C. iria Linn.

B.–*Burachucha..*

Plant—tonic, stim., stomch., astrin.

Throughout India in rice fields.

C. juncifolius Klein; see **C. stoloniferus** Retz.

C. longus Linn.

Tuber—bitter, arom., used in Spain as stim., stomch., emmen.

Quetta, Mt. Abu.

C. platyphyllus Roem. & Schult.

Tuber—tonic, stim.

Deccan Peninsula.

C. rotundus Linn.

S. & Bo.–*Musta*; B. & H.–*Motha, Mutha*; Tam.–*Korai*; Tel.–*Tungamusta.*

Tubers—diur., emmen., anthelm., diaphor., astrin., stim., useful in disorders of the stomach and irritation of the bowels.

Essen. oil (Parry, 1926, 21; *J. Indian Inst. Sci.*, 1925, 39A; *J. pharm. Soc. Japan*, 1928, 128; *J. Soc. chem. Ind., Lond.*, 1922, 172T); Indian tubers contain less than 0·5% essen. oil containing pinene, traces of cineole, sesquiterpenes and a new alcohol *iso*-cyperol (*J. Soc. chem. Ind., Lond.*, 1935, 387T; *Chem. Abstr.*, 1936, 816); the fatty oil contains 2·7% of a neutral waxy substance, glycerol, linolenic, linolic, oleic, myristic and stearic acids (*Chem. Abstr.*, 1941, 7745); an unstable alk. present (*Sci. & Cult.*, 1944-45, 131).

Throughout India common in waste grounds, gardens, and roadsides in open spots and up to an elevation of 6,000 ft.

C. scariosus R. Br.

S.–*Nagarmusta*; H. & B.–*Nagarmotha*; Marathi–*Lawala*; Tam.–*Koraikkilangu.*

Tubers—arom., cordial, stomch., desiccant, used for washing hair, diaphor., diur., astrin., useful in diar., in form of a decoct. used in gonor. and in syphilitic affections.

Tubers yield 0·075-0·080% of essen. oil (*Sci. & Cult.*, 1944-45, 131).

Met with in damp places in Bengal, Uttar Pradesh and eastern and southern parts of India.

C. stoloniferus Retz. syn. *C. juncifolius* Klein

Marathi–*Jatamansi*; Pers.–*Mutransialian.*

Tuber—stomch. stim. for heart (*J. Bombay nat. Hist. Soc.*, 1935, 167).

Shores of India, especially in sea sand, from Sind to Ceylon; the Nilgiri Hills, Malwa in sandy seashore and tidal mud.

CYRTOMIUM (*Polypodiaceae*)

C. falcatum Presl syn. *Aspidium falcatum* Sw.

Rhizome—used by the Chinese as an anthelm., chiefly for the expulsion of tapeworm.

N.W. India, extends from Kashmir and the Punjab to Sikkim and Bhutan, Assam and the Khasia Hills, also in the Nilgiris at the higher elevations.

CYRTOPHYLLUM (*Loganiaceae*)

C. peregrinum Bl. syn. *Fagraea fragrans* Roxb.

Burm.–*Anan.*

Bark—febge.

Alk. and bitter substance (Wehmer, II, 961).

Andaman Islands and Martaban.

CYSTOPTERIS (*Polypodiaceae*)

C. fragilis Bern.

Decoct. of rhizome—used by the Sutos of Basutoland as an anthelm. enema.

Himalayas from Kashmir to Sikkim ascending to 10,000-15,000 ft.

CYTISUS (*Leguminosae*)

C. scoparius Link

Green twigs—collected before flowering used as diur. in dropsy and as a heart tonic; in large doses emetic and purg.

Plant contains the alks. *l*-sparteine, sarothamine and genisteine, besides a glycoside, scoparin, and hydroxytyramine (U.S.D., 1579); four more alks., two structural and two isomerides of sparteine with a fifth substance of higher boiling point identified (Henry, 1949, 138); three carotenoids, chrysanthemaxanthin, xanthophyll and xanthophyll epoxide present in plant (*Chem. Abstr.*, 1947, 6933); total alkaloidal content calculated as sparteine up to 1% (*J. Amer. pharm. Ass.*, 1936, 505; *Chem. Abstr.*, 1936, 5726); its activity is different from that of digitalis, and its therapeutic value has not been established beyond doubt; (U.S.D., 1579, 1100); genisteine possess similar pharmacological action but is somewhat weaker; action of whole plant different from isolated alks.; diur. effect due to the presence of glycoside scoparin (U.S.D., 1579).

A native of western Europe, has become semi-naturalized at Ootacamund (Nilgiris) and is found growing wild as a garden escape at elevations of 7,000-8,000 ft. It grows also in Simla and neighbouring places.

DACTYLOCTENIUM (*Gramineae*)

D. aegyptium Beauv.

Bo.–*Mhar*; H.–*Makra*; P.–*Madana*; Tam.–*Tamida.*

Grains—parched and eaten by women who suffer from bellyache after childbirth.

Decoct. of seeds—renowned in Africa as an alleviator of pain in kidney region.

Spread throughout tropical and subtropical regions of India.

DAEDALACANTHUS (*Acanthaceae*)

D. roseus T. Anders.; see **Eranthemum roseum** R. Br.

DAEMIA (*Asclepiadaceae*)

D. extensa R. Br.; see **Pergularia extensa** N.E. Br.

D. cordata R. Br.; see **Pergularia tomentosa** Linn.

DAEMONOROPS (*Palmae*)

D. draco Blume syn. *Calamus draco* Willd.

H. & Bo.–*Hiradukhi*.

Resin — astrin., used in diar., dysen., eye troubles and in dentifrices.

Gum-dragon (*Arch. Pharm., Berl.*, 1896, 401).

E. Sumatra, S. Borneo and Penang.

DALBERGIA (*Leguminosae*)

D. emarginata Roxb.; see **D. latifolia** Roxb.

D. lanceolaria Linn. f.

H.–*Bithua*; B.–*Chakemdia*; Bo.–*Takoli*; Tel.–*Errapaccari*; Tam.–*Nalvellangu*.

Bark—used in intermittent fever, its infusion given internally in dyspep.

Seed oil—in rheum. affections.

Bark contains 14% tannin (*Indian For. Leafl.*, No. 72, 1949, 9).

Throughout India.

D. latifolia Roxb.

S.–*Shishapa*; B.–*Sitsal*; Tel.–*Cittegi*; Tam.–*Itti*, *Todagatti*.

Plant—bitter tonic, stomch., used in dyspep., diar., leprosy, obesity and worms.

Bark contains tannin (*Indian For. Leafl.*, NO. 72, 1949, 23).

Oudh, E. Bengal, Bihar, Sikkim, Bundelkhand, Madhya Bharat and Western Peninsula.

D. multiflora Heyne ex Wall.; see **D. sympathetica** Nimmo ex Grah.

D. ougeinensis Roxb.; see **Ougeinia oojeinensis** (Roxb.) Hochr.

D. pinnata (Lour.) Prain syn. *D. tamarindifolia* Roxb.

Assam–*Keti*; Nep.–*Damar*.

Root—used in Indo-China as masticatory and anthelm.

Eastern Himalayas, Assam and Western Peninsula.

D. sissoo Roxb.

S.–*Shingshupa*; H. & B.–*Sisu*; Bo. & Tam.–*Sisu*; Tel.–*Sinsupa*.

Leaves—bitter, stim.

Decoct. of leaves—useful in gonor.

Roots—astrin.

Wood—alter., useful in leprosy, boils, eruptions and to allay vomiting.

Pods contain 2% tannin (*Indian For. Leafl.*, No. 72, 1949, 9).

Baluchistan, Waziristan, W. Himalayas up to 4,000 ft., Terai of Nepal and Sikkim to Upper Assam; extensively planted throughout India.

D. spinosa Roxb.

Burm.–*Yechinya*; Tel.–*Chillanki*.

Root—powdered and taken in water destroys effects of alcohol.

Shores of the Eastern and Western Peninsulas and Bengal.

D. stipulacea Roxb.

Burm.–*Dank talungnwi*; Lepcha–*Tonnyok*; Nep.–*Tateberi*.

Bark and roots—fish poison (*J. Bombay nat. Hist. Soc.*, 1941, 854).

E. Himalayas, ascending to 4,000 ft. in Sikkim, Assam, Khasia, Sylhet and Chittagong.

D. sympathetica Nimmo ex Grah. syn. *D. multiflora* Heyne ex Wall.

Bo.–*Pentagul*.

Leaves—alter.

In Goa the bark is used as a 'lep' to remove pimples.

Hills of the Western Peninsula.

D. tamarindifolia Roxb.; see **D. pinnata** (Lour.) Prain

D. volubilis Roxb.

H.–*Bhatia*; Bo.–*Alai*; M.–*Bandigarjana*.

Juice of leaves—used as gargle in sore throat, and applied to aphthae.

Root-juice—in gonor.

India generally, Central and E. Himalayas.

DAPHNE (*Thymelaeaceae*)

D. oleoides Schreb.

P.–*Kutilal*, *Mashur*; Bo.–*Pech*.

Plant—poisonous.

Roots—purg.

Bark and leaves—in cutaneous affections.

Leaves or an infusion—given for gonor., applied to abscesses.

W. Himalayas, 3,000-9,000 ft., Kunawar, Chamba, Kashmir, Baluchistan and Waziristan.

D. papyracea Wall. ex Steud.

H.–*Satpura*; Nep.–*Bhullu*; P.–*Jeku*.

Bitter, purg., febge.

Temperate Himalayas; from Chamba to Bhutan 5,000-7,000 ft. in the west.

DATISCA (*Datiscaceae*)

D. cannabina Linn.

H. & Bo.–*Akalbir*; P.–*Bhangjala*; Kash.–*Woftangal*.

Herb—bitter, purg., febge., diur.

Root—sedative in rheumatism, applied to carious teeth.

Glucd. datiscin (*C.R. Acad. Sci., Paris*, 1925, 1419; *Arch. Pharm., Berl.*, 1918, 51; *Liebigs Ann.*, 1893, 261; 1894, 346; Wehmer, II, 808; *Chem. Abstr.*, 1934, 5599).

Temperate and subtropical W. Himalayas from Kashmir to Nepal, 1,000-6,000 ft., not very common.

DATURA (*Solanaceae*)

D. alba Nees; see **D. metel** Linn.

D. fastuosa Linn.; see **D. metel** Linn.

D. innoxia Mill.

Uses similar to *D. metel*.

Commercial source of scopolamine; whole plant from Latin America contains 0·52-0·62%, leaves 0·52%, calices 1·08%, stems 0·3%, roots 0·39%, fruits 0·77%, capsules 0·33% and seeds 0·44% scopolamine; leaves contain a fixed oil and vitamin C; seeds contain a fixed oil (*Econ. Bot.*, 1948, 436; *Chem. Abstr.*, 1949, 1912; *Brit. chem. Abstr.*, 1947, 618).

A native of Mexico introduced into India and now found growing in Western Himalayas, the hilly regions of the western parts of Deccan Peninsula and a few other places in India. In appearance the plant resembles *D. metel* closely.

D. metel Linn.

B.–*Dhatura*; Bo.–*Dhutura*; H.–*Sadahdhatura*; S.–*Dhustura*; Tam.–*Vellummattai*.

Seeds, leaves and roots—in insanity, fever with catar., and cerebral complications, diar., and skin diseases, antisp.

Dried leaves—used in medicine for the same purposes as the leaves of belladonna and stramonium.

Alks. hyoscyamine, hyoscine, atropine (*Arch. Pharm., Berl.*, 1905, 303, 309, 220; 1910, 641; *J. chem. Soc.*, 1912, 946; *Pharm. Mh.*, 1923, 63); leaves contain 0·426% total alk. mainly atropine and small amount of hyoscyamine; seeds—0·4262% alks. mainly hyoscyamine; roots—0·356% hyoscyamine (*Farmatsiya*, 1939, 17; *Khim. ref. Zh.*, 1940, 90; *Chem. Abstr.*, 1942, 3627); alk. content of roots 0·35, seeds 0·33, leaves 0·23, seedlings 0·19, stalks 0·05% calculated as hyoscyamine on dry basis (*Farmatsiya*, 1946, 27; *Chem. Abstr.*, 1947, 7675); principal alk. scopolamine, the concentrations of hyoscyamine, atropine and *nor*hyoscyamine small (Henry, 1949, 65; *Chem. Abstr.*, 1933, 1713); seeds fixed oil 12% and allantoin; leaves vitamin C (Wehmer, II, 1109, 1110; *Chem. Abstr.*, 1941, 1832; 1939, 5593).*

Throughout India. Occasionally grown in gardens.

D. stramonium Linn. syn. *D. tatula* Linn.

B.–*Sada dhutura*; S.–*Dhattura*; P.–*Tattu dattura*; M.–*Umatai*.

Leaves and seeds—antisp., anodyne, narcotic.

Fruits—sedative, intoxicating.

Leaves—applied to boils, sores and fish-bites.

Juice of flowers—for earache.

Juice of fruits—applied to scalp for curing dandruff and falling hair.

Atropine, hyoscine, hyoscyamine (*Arch. Pharm., Berl.*, 1905, 306, 328; *Ber. dtsch. chem. Ges.*, 1880, 909; *Proc. roy. Soc.*, 1891, 391); leaves—alk. 0·22-0·33%; cultivated plants produce higher percentage (*J. Amer. pharm. Ass.*, 1938, 474; 1942, 166; *Chem. Abstr.*, 1938, 7671; 1942, 4667; *S. Afr. J. Sci.*, 1943, 162; *Chem. Abstr.*, 1944, 2794); seeds of diploid I and tetraploid II yielded total alks. 0·42 and 0·69% respectively; alks. of leafy parts are 0·2 to 0·6% (*Chem. Abstr.*, 1946, 1631; 1950, 3098); dry seeds contain 0·033 and fruit 0·038% total alks. of which 25% scopalamine and 75% hyoscyamine (*Rev. quim. farm., Santiago*, 1949, 4; *Chem. Abstr.*, 1950, 3214); total alkaloids 0·3-0·5%, chiefly hyoscyamine, associated with atropine and hyoscine (B.P.C., 1949, 853).

Himalayas from Kashmir to Sikkim up to 9,000 ft., Baluchistan, hilly districts of Central and S. India.

DAUCUS (*Umbelliferae*)

D. carota Linn. var. **sativa** DC. (cultivated carrot).

S.–*Shikha-mulam*; H., B. & P.–*Gajar*; M.–*Gajjara kelangu*.

Seeds—arom., stim., carmin., useful in diseases of the kidney and in dropsy, nervine tonic, aphrodis., given in uterine pain.

Roots—refrig.

Pyrrolidine and daucine (*Bull. Soc. chim., Paris*, 1907, 1001); As 0·005 mg. in 100 g. roots (*C.R. Acad. Sci., Paris*, 1912, 893; *Chem. Zbl.*, 1912, I, 1730); α-, β- and γ-carotene (*J. Amer. chem. Soc.* 1933, 4728); 1·65% essen. oil containing carrotal (*Parfums de Fr.*, 1936, 127; *Chem. Abstr.*, 1936, 5726); analysis of edible portion (*Hlth Bull.*, No. 23, 1941, 31; *Nature, Lond.*, 1941, 132).

Cultivated throughout India.

DAVALLIA (*Polypodiaceae*)

D. tenuifolia Sw.; see **Sphenomeria chusana** Copeland

DECALEPIS (*Asclepiadaceae*)

D. hamiltonii Wight & Arn.

Tam.–*Mahali kizhangu*; Kan.–*Mahali beru*.

Root—considered an appetiser and blood purifier.

Volatile principle 4-0-methyl-resorcylaldehyde, inositol, saponins, tannins, a crystalline resin acid, an amorphous acid, a ketonic substance, etc. (*Proc. Indian Acad. Sci.*, vol. 13A, 1941, 221; vol. 14A, 1941, 93; vol. 16A, 1942, 135; vol. 13A, 1941, 263).

Deccan Peninsula and common in the forest areas of Western Ghats.

DEERINGIA (*Amaranthaceae*)

D. amaranthoides Merrill syn. *D. celosioides* R. Br.

Assam–*Monbir*; B.–*Gola-mohani, Gaulmauni*; H.–*Latman*; Kumaon–*Kalaloari*.

Leaves—applied to sores.

Roots—used as sternutatory.

Leaves contain appreciable amounts of alkaloidal substances (Burkill, I, 776; *Bull. Coun. sci. industr. Res. Aust.*, No. 241, 1949, 10).

Sub-Himalayan tract from Chenab to Bhutan, Bihar, Bengal and Assam, ascending to 5,000 ft.

D. celosioides R. Br.; see **D. amaranthoides** Merrill

DELIMA (*Dilleniaceae*)

D. scandens Burkill = **Tetracera scandens** Merrill syn. *D. sarmentosa* Linn.

Assam—*Oulota, Panilewa*; Lepcha–*Monkyourik*.

Leaves—used in Malaya for the treatment of boils.

Decoc. of plant—given in dysen. and coughs.

Roots—astrin., used as external application for burns (Burkill, I, 777).

Forests of Bengal, Assam and Andamans.

DELONIX (*Leguminosae*)

D. elata Gamble

Bo.–*Vayni*; Tel.–*Vatanarayana*; Tam.–*Vadanaryana*.

Leaves—used in rheumatism and flatulence.

Bark—In Indo-China considered antiper., and febge.

Very likely introduced in India. Reported to occur wild in some parts of Kathiawar and south India and frequently planted as an avenue tree.

DELPHINIUM (*Ranunculaceae*)

D. ajacis Linn.

Seeds—insecticidal, in form of a tincture applied externally for the destruction of lice in hair.

Alk. (*Arch. Pharm., Berl.*, 1913, 207; O'Shaughnessy); seeds contain alks. ajacine, ajaconine, ajacinine, ajacinoidine, and a base resembling lycoctonine; total alk. 1%; seeds also contain 39% of a fixed oil (*Quart. J. Pharm.*, 1944, 302; *Chem. Abstr.*, 1945, 2621; *Chem. & Drugg.*, 1943, 304; *Chem. Abstr.*, 1943, 3879; *J. chem. Soc.*, 1945, 245; Henry, 1949, 694; U.S.D., 620); insecticidal property attributed by some to the oil, not to the alks. (U.S.D., 620; Henry, 1949, 700).

Commonly cultivated in gardens.

D. brunonianum Royle

P.–*Laskar*.

Juice of leaves—used to destroy ticks in animals [*J. Linn. Soc.* (*Bot.*), 1881, 25].

Western Himalayas and Tibet, 13,000-17,000 ft.

D. caeruleum Jacq. ex Camb.

P.–*Dhakangu*.

Root—kills maggots in wounds of goats.

Alpine Himalayas from Kumaon to Sikkim, and common in the Sutlej basin at 8,000-17,000 ft.

D. cashmirianum Royle

P.–*Amlin*.

Roots used medicinally.

W. Himalayas, Kashmir and Tibet at 10,000-16,000 ft.

D. denudatum Wall.

H.–*Nirbisi*; P.–*Judwar*; S.–*Nirvisha*.

Roots—bitter, stim., alter., tonic, in toothache, adulterant for aconite.

W. temperate Himalayas from Kashmir to Kumaon, 8,000-12,000 ft.

D. elatum Linn.

Plant especially seeds—emetic, aper., diur., anthelm.,

Seeds—used as insecticide.

Seeds yield 1·7% alks. consisting of alks. delatine, delpheline, methyllycaconitine and an unnamed base (*J. chem. Soc.*, 1943, 139; *Chem. Abstr.*, 1943, 4401; Henry, 1949, 696).

W. temperate Himalayas from Kashmir to Kumaon, 10,000-12,000 ft.

D. pauciflorum Royle; see **D. denudatum** Wall.

D. speciosum Janka; see **D. elatum** Linn.

D. vestitum Wall.

P.–*Juhi*.

Leaves—poisonous to goats.

Temperate W. Himalayas from Kashmir to Kumaon and inner Tibetan valleys, 10,000-12,000 ft.

D. zalil Aitch. & Hemsl.

H.–*Asbar*; Bo.–*Gul-jalil*; P.–*Asbarg*.

Considered anodyne, diur., detergent, used in dropsy, jaundice and troubles of the spleen; employed as poultice for swellings.

Alk., glucd. (Dymock, Warden & Hooper, III, 27; I, 24; *Proc. chem. Soc.*, *Lond.*, 1897-98, 55; *J. chem. Soc.*, 1898, 267; Wehmer, I, 321).*

Afghanistan and Persia.

DENDROBIUM (*Orchidaceae*)

D. crumenatum Sw.

Used by Malays for affections of the brain and nerves and a conserve of the flowers & leaves used for cholera and pounded leaves for poulticing boils and pimples.

Alk. (*Bull. Inst. bot. Buitenz.*, 1902, 36); traces of alks. in pseudobulbs and leaves (Brown, I, 365; Burkill, I, 780).

Andaman Islands. Common plant of the Malay Peninsula, found also in Ceylon, Burma, Southern China, and eastwards to Amboina and the Philippines.

D. macraei Lindl.; see **Desmotrichum fimbriatum** Bl.

D. ovatum (Willd.) Kranzl.

Malabar–*Marvar.*

Plant—emol.

Juice of plant—stomch., excites the bile and acts as a laxt. (*J. Bombay ñat. Hist. Soc.*, 1936, 794).

W. Ghats and W. Coast of the Madras State.

DENDROCALAMUS (*Gramineae*)

D. strictus (Roxb.) Nees

H.–*Bans kaban*; B.–*Karail*; Bo.–*Bas*; S.–*Vansha*; Tel.–*Sadanapa veduru*; Tam.–*Kalmungil.*

Silicious matter—tonic, astrin.

Leaves—ecbolics to animals.

In deciduous forests and in dry or moderately dry regions practically all over India up to 3,500 ft.

DENDROPHTHOE (*Loranthaceae*)

D. elastica (Desr.) Danser syn. *Loranthus elasticus* Desr.

Tam.–*Andagan, Cigari*; Mal.–*Mavuitthill.*

Leaves—used for checking abortion and also for stone in the bladder and kidney.

Deccan Peninsula.

D. falcata (Linn. f.) Ettingshausen syn. *Loranthus falcatus* Linn. f.; *L. longiflorus* Desr.

B.–*Baramanda*; H.–*Banda*; Gujarati–*Vando*; P.–*Banda*; S.–*Vanda*; Tam.–*Pulluri*; Tel.—*Badanika.*

Bark—astrin., narcotic, used for wounds and menstrual troubles and also as a remedy for consumption, asthma and mania, subst. for betel nut.

More or less throughout India.

D. pentandra (Linn.) Miq. syn. *Loranthus pentandrus* Linn.

Leaves—used as poultice for sores and ulcers.

Twigs contain quercitrin and a wax. (Burkill, II, 1367; Wehmer, I, 262).

Sylhet.

DENTELLA (*Rubiaceae*)

D. repens Forst.

Said to be used in Malaya for poulticing sores (Burkill, I, 783).

Deccan Peninsula and north eastern parts of India.

DERRIS (*Leguminosae*)

D. elliptica (Roxb.) Benth.

Malaya–*Tubah.*

Roots—fish poison, insecticidal, larvicide.

Fruit and bark—piscidal.

Leaves—poisoonus to cattle.

Glucd.—derrid, anhydro derrid, tubo toxin, derrin (*Arch. Pharm., Berl.*, 1911, 298; *J. Soc. chem. Ind., Lond.*, 1927, 365 T; *Chem. & Drugg.*, 1921, 41; *Ber. dtsch. chem. Ges.*, 1928, 1003); root—rotenone (*Liebigs Ann.*, 1932, 17; *Chem. Zbl.*, 1932, I, 3068; *Sci. Pap. Inst. phys. chem. Res. Tokyo*, 1932, 1; 1934, 1; *Chem. Zbl.*, 1932, II, 2975; 1934, II, 1787); deguelin, tephrosin, toxicarol (*Malay. agric. J.*, 1932, 498); resin from roots contain toxicarol (*Ann. appl. Biol.*, 1938, 411); dried roots—5·1% rotenone and 8·9% *l*-elli ptone (*J. chem. Soc.*, 1939, 1099; *Chem. Abstr.*, 1939, 7793); Trichur and S. Indian Derris contain 9·95 and 6·33% rotenone respectively (*Indian J. Pharm.*, 1939, 130; *Chem. Abstr.*, 1940, 6768); roots contain rotenone, *dl*-toxicarol, tephrosin, and deguelin (*Chem. Abstr.*, 1943, 2127).

Kodala Hill near Chittagong, Assam. Cultivated on experimental scale in Assam, Cochin, Travancore, Mysore, Madras and Punjab.

D. ferruginea Benth.

Assam–*Aru.*

Roots—insecticidal.

Rotenone content of roots from different parts of Assam varies from 1·0 to 4·5% (*Indian For. Leafl.*, No. 20, 1942; *Proc. Indian Acad. Sci.*, vol. 24A, 1946, 344).

Evergreen forests of eastern Himalayas and Assam.

D. malaccensis Prain

Roots—used in the same manner as those of *D. elliptica.*

Roots contain toxicarol, malaccol, an *iso*-flavone, a phenolic resin and a resin containing rotenone, deguelin and elliptone; the roots are richer in total toxic substances, but contain less rotenone

(*Chem. Abstr.*, 1937, 3194; 1940, 7909; *Indian Fmg*, 1949, 423).

Native of Malay Peninsula and cultivated on a small scale in India.

D. scandens (Roxb.) Benth.

B.–*Noalata*; H.–*Gonj*; P.–*Gunj*; Tam.–*Takil*; Tel.–*Nalla tige*.

Plant—used as fish poison, has no insecticidal value.

Roots contain scandenin, nallanin and chandanin (*Proc. Indian Acad. Sci.*, vol. 24A, 1946, 365; *Chem. Abstr.*, 1944, 81; *Curr. Sci.*, 1947, 346).

Forests of N. Oudh, Konkan, Kanara, Madras State from Northern Circars southwards, and Bengal especially near Chittagong, Orissa. Sometimes cultivated in gardens.

D. trifoliata Lour. syn. *D. uliginosa* Benth.

B.–*Panlata*; Bo.–*Kirtana*; Tel.–*Tigekranuga*.

Bark—fish poison, useful in rheumatism and dysmen.

Alk., glucd. (*Arch. Pharm., Berl.*, 1902, 145; 1903, 1; *Curr. Sci.*, 1936, 857); 0·47% rotenone (*Malay. agric. J.*, 1938, 18; *Chem. Abstr.*, 1938, 7653); roots contain 1·2-1·9% of ether soluble matter giving a positive test for rotenone and allied bodies; rotenone however not isolated (*J. Bombay nat. Hist. Soc.*, 1941, 875; Chandrasena, 145).*

Muddy seacoasts and creeks of Bombay and Madras States and near the sea from Cuttack tidal forests to Puri (near the Chilka Lake), Sundarbans, Chittagong, Assam and Eastern Himalayas.

D. uliginosa Benth.; see **Derris trifoliata** Lour.

DESCURAINIA (*Cruciferae*)

D. sophia (Linn.) Webb

Flowers and leaves—astrin., antiscor.

Seeds—bitter, expect., restor., tonic, useful in fevers, broncht., and dysen., given for worms and calculus complaints, mixed in syrup swallowed as cure for fever.

Plant has a pungent odour when rubbed and an acrid biting taste; these qualities attributed to a volatile alk. (Wealth of India, III, 41).

Temperate Himalayas from Kashmir to Kumaon at 5,000-14,000 ft., E. Himalayas, Salt Range, Peshawar and Baluchistan.

DESMODIUM (*Leguminosae*)

D. gangeticum DC.

S. & Bo.–*Shalaparni*; H.–*Sarivan*; B.–*Salpani*; Tam.–*Pulladi*; Tel.–*Gitanaram*.

Root—astrin., in diar., tonic, diur., in chr. fever, biliousness, cough, vomiting, asthma, snake-bite and scorpion-sting.

Outer Himalayas, up to 5,000 ft. and throughout India.

D. gyroides DC.

Leaves—pulped and made into a poultice and used for lumbago.

Central and Eastern Himalayas, tropical regions, Garhwal to Khasia, Cachar and Upper Bengal.

D. heterophyllum DC.

Roots—carmin., tonic, diur.

Leaves—galact.

Decoct. of whole plant—given in stomach and abdominal complaints.

Eastern Himalayas, tropical zone, Khasia and Assam.

D. lasiocarpum DC.; see **D. latifolium** DC.

D. latifolium DC. syn. *D. lasiocarpum* DC.

Burm.–*Kinbun*; Santh.–*Simmithasura*; Tam.–*Chimbattai*.

In Gold Coast the roots mixed with small hot peppers used in enema to cure blood in urine.

Himalayas, ascending to 4,000 ft. in Sikkim.

D. polycarpum DC. = **D. heterocarpum** DC.

Tel.–*Chepputatta*; Santh.–*Boephol*.

Plant—used in fainting and convulsion.

Decoct. of plant—considered tonic and useful for coughs.

Throughout India.

D. pulchellum Benth. ex Baker

S.–*Lodrom*; M.–*Vellalothi*.

Decoct. of the bark—used in haemor., diar., poisoning and eye diseases.

Flowers—used in biliousness.

All over India.

D. retroflexum DC.

Root—considered deobstruent, emmen., stomch., aper.

Assam and Sylhet.

D. tiliaefolium G. Don

H.–*Sambar*.

Roots—carmin., tonic, diur., in bilious complaints.

Along the Himalayas from the Upper Punjab to Tavoy, temperate and tropical regions up to 9,000 ft.

D. triflorum DC.

B.–*Kodalia*; H.–*Kudaliya*; Bo.–*Jangli methi*; Tam.–*Sirupulladi*; Tel.–*Muntamandu*.

Leaves—galact., remedy for diar., dysen. and convulsion.

Fresh leaves—applied to wounds and abscesses.

Common throughout the plains of India and in the Himalayas up to 7,000 ft.

D. triquetrum DC.

Assam–*Ulucha*; Bo.–*Kakganga*; Tel.–*Dammidi*.

Leaves—extract or pills used in piles, subst. for tea.

Dried leaves contain 7·1 to 8·6% tannin (Burkill, I, 795).

C. and E. Himalayas, ascending to 4,000 ft. in Kumaon, Sikkim and Khasia Hills to South India.

DESMOS (*Annonaceae*)

D. chinensis Lour. syn. *Unona discolor* Vahl

Decoct. of the root—used for dysen. and vertigo.

Forests of north-east, south and west India.

D. cochinchinensis Lour. syn. *Unona desmos* Raeusch.

The Malays use the decoct. of the roots for fever.

Assam.

DESMOSTACHYA (*Gramineae*)

D. bipinnata Stapf

S. & B.–*Darbha, Kusha*; H.–*Dab, Durva*; Bo.–*Darbh*; Tel.–*Darbha*.

Culms—diur., stim., in dysen., menor.

Throughout India in hot and dry places.

DESMOTRICHUM (*Orchidaceae*)

D. fimbriatum Bl. syn. *Dendrobium macraei* Lindl.

B.–*Jibanti*; Bo., H & S.–*Jivanti*.

Plant—stim., demulc., tonic, used in snake-bite.

Alk. (*Bull. Inst. bot. Buitenz.*, 1902, 36); traces of alk. jibantine and two acids (*J. Bombay nat. Hist. Soc.*, 1936, 794; Dymock, Warden & Hooper, III, 391).

W. Ghats of Bombay and Madras States, Sikkim and Khasia Hills.

DIANTHUS (*Caryophyllaceae*)

D. anatolicus Boiss.

Ind. Baz.–*Kanturiyan*.

Antiper. in intermittent fevers.

W. Himalayas, W. Tibet and Kashmir.

D. caryophyllus Linn.

In Spain and North America the flowers considered cardiotonic, diaphor., alexiteric, nervine and antisp.

In China plant used as vermifuge.

Punjab and Kashmir at 7,000-8,000 ft. Commonly grown in gardens especially on the hills.

D. chinensis Linn.

Dried flowering plants used in China as diur., anthelm., abortif.

In Malaya herb used for gonor.

Cultivated in Indian gardens.

DICHROA (*Saxifragaceae*)

D. febrifuga Lour.

H.–*Basak*; Nep.–*Aseru*.

Roots and leafy tops—emetic, febge.

Roots contain two neutral compounds dichrin A & dichrin B and two alks., dichroine A & dichroine B; extracts equivalent to 7·5-15 g. herb have antipyr. effect but lower anti-parasitic effect; dichroine B is active in chick malaria (*Science*, 1946, 59; *Chem. Abstr.*, 1946, 1941); roots and leaves — alk. febrifugine; roots a second alk. isofebrifugine; febrifugine approximately 100 times as active as quinine against *Plasmodium lophurae* in ducks (*J. Amer. chem. Soc.*, 1947, 1837; *Chem. Abstr.*, 1947, 5984); root alks. possess the greatest antimalarial activity (*J. Amer. chem. Soc.*, 1948, 1765; *Chem. Abstr.*, 1948, 6368); alks. dichorine A, dichorine B, dichorine C, dichoridine, quinazolone (*Nature, Lond.*, 1948, 400; *Sci. & Technol. China*, 1948, 56; *Chem. Abstr.*, 1948, 6368); ground root — 0·05-1·0% alk. (*J. Amer. chem. Soc.*, 1949, 1048; *Chem. Abstr.*, 1949, 5405; 1950, 6086).

Himalayas, Nepal to Bhutan, 4,000-8,000 ft. and Khasia Hills.

DICHROCEPHALA (*Compositae*)

D. latifolia DC.

Tender shoots—employed in Cambodia as a poultice for blennorrhagia and for insect bites and stings.

Decoct. of flower buds — considered sudorific and diur. in Java.

Himalayas, from Simla to Sikkim, Khasia Hills, Cachar and Western Ghats up to 9,000 ft.

DICHROSTACHYS (*Leguminosae*)

D. cinerea W. & A.

S.–*Viravriksha*; H.–*Vurtuli*; Bo.–*Segumkati*; Tam.–*Vidattalai*; Tel.–*Veltura*.

Bruised young shoots—useful in ophthalmia.

Root—astrin., used in rheumatism, urinary calculi and renal troubles.

N.W. India, Madhya Bharat, Rajputana, Deccan, S. Mahrata Country and N. Kanara to Ceylon.

DICLIPTERA (*Acanthaceae*)

D. bupleuroides Nees syn. *D. roxburghiana* Nees var. *bupleuroides* C. B. Clarke

Simla—*Bouna*.

Plant—used as tonic.

Hills throughout India up to 7,000 ft.

D. roxburghiana Nees

P.–*Kirch, Somni.*

Plant—used as tonic.

Plains of Punjab and Bengal, Assam, Bhutan.

DICOMA (*Compositae*)

D. tomentosa Cass.

Gujarati–*Choloharnacharo*; Marathi–*Navananjichapala.*

Herb—bitter, febge., especially in febrile attacks after child-birth.

In Africa used as a local application to putrescent wounds.

N.W. India, Punjab, Sind, Gujarat, Deccan, S. Mahrata Country, Carnatic, the Nilgiris, Coimbatore and Mysore.

DICRANOPTERIS (*Gleicheniaceae*)

D. linearis (Burm.) Underwood syn. *Gleichenia linearis* Bedd.; *G. linearis* C.B. Clarke; *G. dichotoma* Willd.

Rhizome—used in Annam as anthelm.

Fronds—used in Madagascar for asthma.

Fluid extracted from fronds shows antibacterial properties (Burkill, I, 1072; *J. Bombay nat. Hist. Soc.*, 1935, 356; *Pacif. Sci.*, 1950, 167).

Hills almost throughout India, ascending up to 6,000 ft.

DICTAMNUS (*Rutaceae*)

D. albus Linn.

Root-bark—arom. bitter, used in intermittent fever, nervous diseases and amenor., hysteria.

In Indo-China and Malaya a decoct. of the root given for scabies and other skin affections.

Roots contain crystalline tox. alk., dictamnine, trigonelline, choline, obaculactone, crystalline saponin dictamnolacton, essen. oil; flowers yield 0·05% essen. oil (*Ber. dtsch. pharm. Ges.*, 1923, 68; *Ber. Schimmel u. Co., Lpz.*, 1924, 23; 1925, 20; Henry, 1949, 413; *Chem. Abstr.*, 1930, 2236; 1937, 6642; *J. sci. industr. Res.*, 1948, suppl., 101); alk. dictamnine strongly contracts guinea pig or rabbit uterine muscles; tox. dose for mice 0·05-0·005 mg. (*Farmatsiya*, 1946, 20; *Chem. Abstr.*, 1947, 6989).

Temperate W. Himalayas, from Kashmir to Kunawar, 6,000-8,000 ft., common in Pangi.

DIDYMOCARPUS (*Gesneriaceae*)

D. aromatica Wall.

H.–*Kumkuma.*

Herb — arom.

Nepal, Kumaon.

D. pedicellata R.Br.

H.–*Pathar phori*; S.–*Shila pushpa.*

Leaves—used as a cure for stones in kidney and bladder (*J. Indian chem. Soc.*, 1937, 703).

Crystalline colouring matters, including pedicin, pedicellin, pedicinin and methyl pedicinin isolated from the leaves; pedicin tox. to fish (*J. Indian chem. Soc.*, 1937, 703; 1939, 519; *J. sci. industr. Res.*, 1947, 59B; *Proc. Indian Acad. Sci.*, vol. 27A, 1948, 375); essen. oil obtained from the ether extract of the leaves contains as its chief constituent didymocarpene (*J. Indian chem. Soc.*, 1939, 423).

Sub-tropical western Himalayas from Chamba to Kumaon at 2,500-5,500 ft.

DIEFFENBACHIA (*Araceae*)

D. seguine (Jack) Schott

Juice of plant—poisonous.

Leaves—used in Malaya for the treatment of rheumatism and swellings; they are either powdered and applied as poultice or boiled in oil and used as embrocation.

Rhizome contains calcium oxalate (Burkill, I, 807; Wehmer, I, 136).

West Indies. Cultivated in India for ornamental purposes.

DIGERA (*Amaranthaceae*)

D. arvensis Forsk.; see **D. muricata** (Linn.) Mart.

D. muricata (Linn.) Mart. syn. *D. arvensis* Forsk.

B.–*Luta mahawria*; Bo.–*Getan*; H.–*Latmahuria*; P.–*Tartara*; S.–*Manjirika*; Tam.–*Thoyyakeerai*; Tel.–*Chenchalikura.*

Flowers and seeds—given for urinary discharges.

Plant — laxt. in large doses (*Madras agric. J.*, 1949, 438).

Common weed throughout the plains of India.

DIGITALIS (*Scrophulariaceae*)

D. lanata Ehrh.

English — *Grecian Foxglove.*

Leaves—used for certain conditions of the heart mainly as a cardiac stim. and tonic.

Leaves contain digilanide (lanatoside) A, B and C (*Arch. Chem. Farm., Warsz.*, 1935, 129; *Chem. Abstr.*, 1936, 1182); tigonin and lanadigin (*Ber. dtsch. chem. Ges.*, 1936, 1665; *Chem. Abstr.*, 1936, 6381); tinctures made from the Kashmir and Austrian varieties twice as tox. to cats as those made from the standard *D. purpurea* (*Indian J. med. Res.*, 1936, 509); digitoxin content 1·2-1·3% calculated on the basis of *D. purpurea* = 1 (*Fitoterapia*, 1938, 95; *Chem. Abstr.*, 1939, 1089); digilanide C is the most active component; (*Schweiz. med. Wschr.*, 1938, 1335; *Chem. Abstr.* 1939, 2898); has shorter period of action than *D. purpurea* but is less tox. and excellent diur., richer in glucds. (*Wien. med. Wschr.*, 1938, 1321; *Chem. Abstr.*, 1939, 4369); effective in congestive heart failure (*Amer. Heart J.*, 1941, 133; *Chem. Abstr.*, 1941, 2600); its glucd. resembles that of Strophanthus (*Med. Welt*, 1939, 1231; *Chem. Abstr.*, 1941, 2604); has marked cumulative tox. properties (*West. J. Surg.*, 1940, 757; *Chem. Abstr.*, 1941, 4853); minimum lethal dose of Bogota digitalis leaf powder 0·1 g./kg. cat (*Arch. urug. Med.*, 1943, 213; *Chem. Abstr.*, 1944, 4999); a new carditonic glucd. digicorin can be isolated from leaves (*Acta phytochim., Tokyo*, 1949, 201; *Chem. Abstr.*, 1950, 3512); leaves source of digoxin which is used for same purposes as prepared digitalis (B.P.C., 1949, 308).

Cultivated in Kashmir at Tangmarg and Baramulla nurseries.

D. purpurea Linn.

English — *Common Foxglove.*

Leaves—used for certain conditions of the heart mainly as a cardiac stim. and tonic.

Leaves contain several glycosides of which digitoxin, gitoxin and gitalin the principal glycosides to which its physiological activity is due (I.P.C., 94); Argentine digitalis leaves yield 0·317% digitoxin (*Rev. sudamer. Endocr.*, 1935, 683; *Chem. Abstr.*, 1936, 572; *Arch. Chem. Farm., Warsz.*, 1935, 129; *Chem. Abstr.*, 1936, 1182); digitoxin most potent of digitalis glycosides (B.P.C., 1949, 307); variations in digitoxin content (0·15 to 0·79 g./kg.) and gitoxin content (0 to 0·7 g./kg.) noted in dried leaves (*Schweiz. med. Wschr.*, 1940, 594; *Chem. Abstr.*, 1941, 1934); tannins, inositol, luteolin and many acids and fatty matter are also present (Wehmer, II, 1128; *Chem. Abstr.*, 1948, 6060; 1933, 2528); a new cardiotonic glucd. digicorin isolated from leaves (*Acta phytochim., Tokyo*, 1949, 201; *Chem. Abstr.*, 1950, 3512).

Cultivated in Kashmir at Tangmarg and Kishtwar, 6,000-7,000 ft., Darjeeling district, and the Nilgiris.

DILLENIA (*Dilleniaceae*)

D. indica Linn.

S.–*Bhavya*; H. & B.–*Chalta*; Bo.–*Mota karmal*; Tam. & Tel.–*Uva.*

Fruit—tonic, laxt., used in abdominal pains.

Juice of the fruit — mixed with sugar and water is used as a cooling beverage in fevers and as a cough mixture.

Bark and leaves—astrin.

Bark and leaves contain tannin (*Indian For.*, 1914, 419; *Indian For. Leafl.*, No. 72, 1944, 8).

Evergreen forests of the sub-Himalayan tract, from Kumaon and Garhwal eastwards to Assam and Bengal, and southwards to Central and South India.

DINOCHLOA (*Gramineae*)

D. andamanica Kurz syn. *D. tjankorreh* Buse var. *andamanica* Gamble

Andamans—*Baradahabarat.*

In Malay States the watery sap inside the stem used for scurfiness and young shoots as vermifuge (Burkill, I, 811).

Coast of Andamans.

D. tjankorreh Buse var. **andamanica** Gamble; see **D. andamanica** Kurz

DIOSCOREA (*Dioscoreaceae*)

D. aculeata Linn.; see **D. esculenta** Burkill

D. alata Linn. syn. *D. atropurpurea* Roxb.; *D. globosa* Roxb.; *D. purpurea* Roxb.; *D. rubella* Roxb.

S.–*Pindalu*; H. & B.–*Chupri alu*; Bo.–*Chopri alu*; Tel.–*Pendalamu*; Tam.–*Perumvalli kizhangu.*

Tubers—anthelm., useful in leprosy, piles, gonor.

Tox. alk. (*Meded. PlTuin, Batavia*, 1894, 68; 1899, 123).

Cultivated practically in all the States in India.

D. bulbifera Linn. syn. *D crispata* Roxb.; *D. pulchella* Roxb.; *D. sativa* Thunb. non Linn.; *D. versicolor* Buch.-Ham. ex Wall.

H.–*Ratalu*, *Pitalu*; Marathi–*Karukarinda*; B.–*Banalu*, *Kukuralu*; Tam.–*Kodikilangu*; Tel.–*Chedupaddu-dumpa.*

Tubers—used in piles, dysen., syphilis, applied to ulcers.

Poisonous glucd. (*Pharm. Ztg, Berl.*, 1892, 776).

Common throughout India ascending up to 6,000 ft. in the Himalayas.

D. daemona Roxb.; see **D. hispida** Dennst.

D. deltoidea Wall.

Kash.–*Kins, Kildri*; P.–*Kniss, Kirta.*

Tubers—used to kill lice, fish poison.

Saponin (Wealth of India, III, 72).

North-western Himalayas from Kashmir and Punjab eastward to Nepal and China at 3,000-10,000 ft.

D. esculenta Burkill syn. *D. aculeata* Linn.; *D. fasciculata* Roxb.; *D. spinosa* Roxb. ex Wall.

B.–*Suthni, Susnialu*; Bo.–*Kangar*; Tam.–*Musilam valli kilangu, Siruvalli kilangu*; Tel.–*Silakadom, Tippa tiga.*

Grated tubers—used as application for swellings (Burkill, I, 818).

Found in Malabar, Coromandal Coast in Deccan, Madhya Bharat, Uttar Pradesh, Bihar, Orissa, West Bengal, and Assam, ascending to 3,000 ft. in the Eastern Himalayas. Also in Khasi-Naga Hills, Garo Hills and Andaman Islands.

D. globosa Roxb.; see **D. alata** Linn.

D. hispida Dennst. syn. *D. daemona* Roxb.; *D. hirsuta* Dennst.; *D. triphylla* Linn.

H.–*Karukandu*; Marathi–*Baichandi*; Tam.–*Peiperendai*; Tel.–*Tella-ginigeddalu, Pulidumpa.*

Milky juice of tubers — along with juice of *Antiaris toxicaria* Lesch., used as arrow poison.

Tox. principle dioscorine; tubers not effective against leeches (*J. Asiat. Soc. Beng.*, N.S., 1911, 57; Prain & Burkill II, 425).

Nearly throughout India, up to 4,000 ft. in Sikkim Himalayas and Khasia Hills. Rarely cultivated.

D. oppositifolia Linn.

Tam.–*Kavalakodi, Venilai valli*; Tel.–*Adairdumpa, Yellagadda.*

Tubers—used as an external application to reduce swellings, in scorpion-sting and snake-bite (*Bull. Sci. pharm.*, 1909, 509; *J. Asiat. Soc. Beng., N.S.*, 1911, 57).

Native of south India and occurs throughout the hills of Deccan at 2,000-4,000 ft.

D. pentaphylla Linn. syn. *D. jacquemontii* Hook. f.; *D. triphylla* Linn.

H. & Bo.–*Kanta alu*; B.–*Suar alu*; Marathi–*Ulasi*; Tam.–*Kattukkillangu*; Tel.–*Dukapendalamu.*

Tubers—used for dispersing swellings, tonic (*Meded. PlTuin, Batavia*, 1894, 16; 1899, 141; *J. Asiat. Soc. Beng., N.S.*, 1911, 57; *J. Bombay nat. Hist. Soc.*, 1951, 624).

Throughout India ascending to 5,000 ft.

D. prazeri Prain & Burkil syn. *D. clarkei* Prain & Burkill; *D. deltoidea* Wall. var. *sikkimensis* Prain; *D. sikkimensis* Prain & Burkill

Eastern Himalayas–*Kukur torul*; Lepcha–*Kencheong.*

Tubers—used to kill lice, fish poison.

Saponins (*Ann. R. bot. Gdn Calcutta*, 1936-39).

Wetter parts of Eastern Himalayas up to 5,000 ft. in North Bihar, North Bengal, Nepal, Sikkim, Bhutan and Abor Hills, and in Naga Hills up to 5,500 ft.

D. sativa Thunb.; see **D. bulbifera** Linn.

D. triphylla Linn.; see **D. hispida** Dennst.

DIOSPYROS (*Ebenaceae*)

D. candolleana Wight

S.–*Nila-vriksha*; M.–*Karimaram*; Tam.–*Karikattai.*

Decoct. of the root bark—given in rheumatism and swellings.

Evergreen forests along the west coast.

D. ebenum Koenig

H.–*Abnus, Ebans*; Kan.–*Karemara*; Mal.–*Karu, Vayari*; Tam.–*Tumbi, Karai*; Tel.–*Nallavalludu, Tumiki.*

Plant—astrin., attenuant, lithontriptic, fish poison (*Arch. Pharm., Berl.*, 1899, 369; *Indian J. agric. Sci.*, 1940, 31).

Dry evergreen forests of Deccan and Karnatak extending westward to north Coimbatore, South Kanara and Coorg, and southward through Malabar and Cochin to Travancore.

D. embryopteris Pers.; see **D. peregrina** Gurke

D. kaki Linn. f.

Assam–*Dieng-iong, Soh-tang-jong*; H.–*Halwa tendu.*

Roasted seeds—used as subst. for coffee.

Calyx and peduncle of fruit—used in the treatment of coughs and dyspnoea (Burkill, I, 832; Winton & Winton, II, 840; *Chem. Abstr.*, 1932, 4408).

Native of north-eastern India, and extending to Japan. Cultivated in some parts of India.

D. lotus Linn.

H. & P.–*Amlok.*

Seeds—regarded as sedative in China.

Fruits—antifebrile and used to promote secretions.

Fruits contain tannic acid, invert sugar and malic acid (*J. Amer. chem. Soc.*, 1906, 688; Wehmer, II, 943; *Chem. Abstr.*, 1941, 3288).

W. Punjab, W. Kashmir, in North-western Himalayas at 2,000-6,000 ft.

D. melanoxylon Roxb.

S.–*Dirghapatraka*; H.–*Tendu*; Uriya–*Kendu*; Tam.–*Karai, Tumbi*; Tel.–*Mancigata, Tumbi*; Marathi–*Tendu.*

Bark—astrin.

Decoct. of bark—in diar., dyspep., tonic; a dilute extract used as astrin. lotion for the eyes.

Leaves—diur., carmin., laxt., and styptic.

Dried flowers—useful in urinary, skin and blood diseases.

Bark 19, fruit 15 and half-ripe fruit 23% tannin (*Indian For. Leafl.*, No. 72, 1949, 10).

Deciduous forests of the Madhya Bharat, Chota Nagpur, Bihar and West. Peninsula.

D. montana Roxb.

S.–*Tumala*; H.–*Bistendu, Lohari*; B.–*Bangab*; Bo.–*Kundu*; Tam.–*Vakkanai*; Tel.–*Eddayagata*; Marathi–*Goindu*.

Fruits—poisonous, applied externally to boils.

Crushed leaves and fruits—used for stupefying fish.

Throughout the greater part of India, but nowhere very common.

D. paniculata Dalz.

S.–*Thinduka*; Tam.–*Karunduvari*; Mal.–*Kari*.

Leaves—fish poison.

Dried and powdered fruits—applied to heal burns.

Decoct. of the fruit—given in gonor., to purify blood and biliousness.

Powdered bark—in rheumatism and ulcers.

Forests of S. Mahrata Country, Kanara, Malabar and Travancore up to 3,000 ft.

D. peregrina Gurke syn. *D. embryopteris* Pers.; *D. malabarica* Desr.

S.–*Tinduka*; H. & B.–*Gab*; Bo.–*Tendu*; Tam.–*Kattatti, Tumbi*; Tel.–*Tinduki*; Mal.–*Panachi*.

Fruit and stem bark—astrin.

Oil of seeds—given in diar. and dysen.

Unripe fruit—acrid, bitter, oleaginous.

Infusion of fruits—used as gargle in aphthae and sore throats; juice used as application for wounds and ulcers.

Bark—used in dysen. and intermittent fevers.

Fruit 15 and bark 12% tannin. Ether extract of the fruits possesses antibacterial activity (*Indian For. Leafl.*, No. 72, 1949, 10; *J. sci. industr. Res.*, 1952, 261B).

Practically throughout India.

D. tomentosa Roxb.

H.–*Tendu, Kendu*; B.–*Kend*; Tam.–*Tumbi*; Tel.–*Cittatumiki*; P.–*Tendu*.

Fruit—astrin.

Sub-Himalayan tract from Ravi to Nepal, Rajputana, Madhya Bharat, Bihar, Orissa, extending southwards to Circars.

D. toposia Buch.-Ham. = **D. racemosa** Roxb.

Assam–*Thing-bong*; B.–*Gulal, Toposi*; Tam.–*Karunduvarai*.

Gum from freshly cut trees—used as a remedy for toothache.

Hilly parts of eastern Bengal, Assam, Travancore and Tinnevelly.

DIPCADI (*Liliaceae*)

D. erythraeum Webb & Berth. syn. *D. unicolor* Baker

Bulbs—used as a subst. or adulterant for Indian squill (*Urginea indica* Kunth), the bulb of which resembles digitalis in action and is used mainly as an expect. in the treatment of cough.

Jaisalmer (Rajputana).

DIPLOCLISIA (*Menispermaceae*)

D. glaucescens (Bl.) Diels syn. *Cocculus macrocarpus* W. & A.

Tam.–*Kottaiyachachi*; Marathi–*Vatoli*.

Leaves—powdered and taken in milk to cure syphilis, biliousness and gonor.

Leaves contain mucil. and saponins.

Khasi Hills and in Western Ghats from Konkan southwards up to 6,000 ft.

DIPLOSPORA (*Rubiaceae*)

D. sphaerocarpa Hook. f.; see **Tricalysia sphaerocarpa** Gamble

DIPTERACANTHUS (*Acanthaceae*)

D. prostratus Nees syn. *Ruellia prostrata* Poir.

Gujarati–*Kalighavani*; Mal.–*Upudali*; Tam.–*Pottakanchi*.

Leaves—given with liquid copal as remedy for gonor.

Used as a remedy for ear diseases.

Throughout India.

D. suffruticosa Voigt syn. *Ruellia suffruticosa* Roxb.

Santh.–*Chaulia, Ranuran*.

Roots—used in gonor., syphilis and renal affections. Dried and ground root taken in a dose of 2 oz. causes abortion; also used as a medicine for sore eyes.

Upper Gangetic Plain, Bengal, Madhya Bharat, Bihar and Orissa.

DIPTEROCARPUS (*Dipterocarpaceae*)

D. alatus Roxb.

B.–*Garjan*.

Balsam—subst. for copaiba, externally applied in gonor.

Bark—considered tonic and depurative and prescribed in rheumatism.

Oil—applied to ulcerated wounds.

Essen. oil, resin containing crystalline acid (*Arch. Pharm., Berl.*, 1903, 372; 1908, 71; *Liebigs Ann.*, 1909, 56; 1910, 105 *Ber. Schimmel u. Co., Lpz.*, 1913, April, 61; 1915, April, 30).*

Chittagong and Andamans.

D. incanus Roxb.; see **D. alatus** Roxb.

D. indicus Bedd. syn. *D. turbinatus* Dyer (Fl. Br. Ind., I, 295 in part).

Tam. – *Enney*; Kan. – *Banasampa*, *Dhuma*; Mal.–*Kakka*.

Oleo-resin—used in rheumatism.

Evergreen forests of W. Ghats, from N. Kanara southwards up to 3,000 ft.

D. pilosus Roxb.

Assam–*Hollong*.

Balsam—used in gonor., gleet and similar affections of urinary organs.

Sylhet, Chittagong, South Tipperah and Andamans.

D. tuberculatus Roxb.

Burm.–*In*, *Eng*.

Oleo-resin—applied to ulcers.

Essen. oil (*Ber. Schimmel u. Co., Lpz.*, 1913, April, 61; *J. sci. industr. Res.*, 1947, suppl., 54).

Eastern and southern borders of Assam, Burma.

D. turbinatus Gaertn. f. (Fl. Br. Ind. in part).

B.–*Teli garjan*; Assam–*Gurjun kuroilsal*, *Kherjong*; Burm.–*Kanyin-in*.

Oleo-resin—applied to ulcers, ringworm, and cutaneous affections, diur., in gonor. (*Arch. Pharm., Berl.*, 1903, 372; *Ber. Schimmel u. Co., Lpz.*, 1913, April, 61),

Assam and Andamans.

DISCHIDIA (*Asclepiadaceae*)

D. rafflesiana Wall.

Assam–*Hankha-ajhar-mona*, *Bandikuri*.

Roots—chewed with betel to cure coughs.

Assam hills.

DODONAEA (*Sapindaceae*)

D. viscosa Linn.

H.–*Aliar*, *Sanatha*; Bo.–*Bandurgi*, *Jakhmi*; Tam.–*Velari*; Tel.–*Bandedu*; P.–*Benmenu*.

Leaves—febge., sudorific, in gout and rheumatism, for wounds, swellings and burns.

Bark—employed in astrin. baths and fomentations.

Plant—fish poison.

Saponin (*Apothekerztg, Berl.*, 1893, 589; *Pharm. J.*, 1909, 795); 0·02% alk., and glucd. (*Indian For.*, 1933, 78); seeds yield 3·42% dodonin (*Proc. Indian Acad. Sci.*, vol. 26A, 1947, 56; *Chem. Abstr.*, 1948, 1947; *Indian Soap J.*, 1948, 132).

Almost throughout India. N.W. Himalayas up to 4,500 ft., in S. India, ascending to 8,000 ft., the Nilgiris. Commonly planted in northern India as a hedge plant.

DOLICHANDRONE (*Bignoniaceae*)

D. falcata Seem.

H.–*Hawar*; Bo.–*Manchingi*; Tam.–*Kaddalatti*; Tel.–*Cittivodi*; Marathi–*Mersingi*.

Plant—used as abortif.

Fruits—considered medicinal.

Bark—fish poison (*Meded. PlTuin, Batavia*, 1897, 39; 1899, 136).

Rajputana, Bundelkhand, Uttar Pradesh, Madhya Bharat, Bihar, Berar, Konkan, Deccan, Mysore and most forests of Madras State.

D. rheedii Seem.; see **D. spathacea** K. Schum.

D. spathacea K. Schum. syn. *D. rheedii* Seem.

Tam.–*Viribadiri*; B.–*Gorshingiah*; Mal.–*Nirpponalyam*.

Seeds—antisp., administered with ginger in spasmodic affections (*Meded. PlTuin, Batavia*, 1897, 39; 1899, 136).

Malabar, Travancore, Sundarbans and the Andamans.

D. stipulata Benth. = **Markhamia stipulata** (Wall.) Seem.

Burm.–*Petthan*.

Alk. (*Meded. PlTuin, Batavia*, 1897, 39; 1899, 136).

Forests of the plains of the Andaman Islands, Pegu and Rangoon, extending thence north to Ava.

DOLICHOS (*Leguminosae*)

D. biflorus Linn.

S.–*Kulattha*; H. & Bo.–*Kulthi*, *Koolthee*; B.–*Kurti-kalai*; Tam.–*Kollu*; Tel.–*Ulavalu*; Mal.–*Muthiva*.

Seeds—astrin., diur., tonic.

Decoct.—used in leucor. and menstrual disorders.

Seeds rich source of urease (*Biochem. J.*, 1914, 449; *J. biol. Chem.*, 1916, 297; *Indian J. med. Res.*, 1932, 1077; *Hlth Bull.*, No. 23, 1951, 30; *J. Indian Inst. Sci.*, 1930, 153A; *Proc. Indian Acad. Sci.*, vol. 27B, 1948, 26; *Curr. Sci.*, 1946, 15).*

Himalayas to Ceylon, ascending to 3,000 ft., in Sikkim; sometimes cultivated.

D. falcatus Klein

M.–*Kattamara*.

Roots—used in piles, constip., ophthalmia and skin diseases.

Decoct. of the seeds—specific for rheumatism.

Himalayas, from Kumaon to Khasia, ascending to 7,500 ft. and plains of Western Peninsula.

D. lablab Linn.

S.–*Shimbi*; H.–*Sem*; B.–*Makham-sim*; Bo.–*Panti*; Tam.–*Avarai*.

Seeds—febge., stomch., antisp., aphrodis.

Roots—poisonous (*Arch. Pharm., Berl.*, 1906, 668).

Wild and universally cultivated throughout India, ascending in the Himalayas to 6,000-7,000 ft.

DOLOMIAEA (*Compositae*)

D. macrocephala DC.; see **Jurinea macrocephala** Benth.

DOREMA (*Umbelliferae*)

D. ammoniacum D. Don

Ind. Baz.–*Ushak*.

Oleo-gum resin—expect., stim., antisp., used in catarrh, asthma, chr. broncht., in enlargement of liver and spleen.

Essen. oil (*Ber. Schimmel u. Co., Lpz.*, 1890, April, 47; 1915, April, 7; *Ber. dtsch. chem. Ges.*, 1917, 1823; *Arch. Pharm., Berl.*, 1895, 553; Wehmer, II, 894).*

Persia.

D. aureum Stocks

Resembles *D. ammoniacum*.

Baluchistan.

DORONICUM (*Compositae*)

D. falconeri Hook. f.

Roots—arom. tonic, said to be useful in nervous depression.

North-western Himalayas, Kashmir 13,000 ft., Karakoram Range, 14,000 ft.

D. hookeri Hook. f.

P.–*Darunaj-akrabi*.

Roots—arom., tonic.

Sikkim Himalayas at Lachen and Tungu between 12,000-14,000 ft.

D. pardalianches Linn.

Ind. Baz.–*Darunaj-i-akrabi*.

Roots—used as a constituent of cardiac tonic preparations (*J. Bombay nat. Hist. Soc.*, 1940, 643); useful in nervous depression, melancholia, in scorpion-bite.

Root—inulin.

Europe.

D. roylei DC.

P.–*Darunaj-akrabi*.

Roots—arom. tonic, used to prevent giddiness caused on ascending heights.

W. Himalayas, from Kashmir to Garhwal, up to 10,000 ft.

DRABA (*Cruciferae*)

D. muralis Linn.

In Spain plant used as antiscor.

Kashmir up to 6,000 ft.

DRACAENA (*Liliaceae*)

D. angustifolia Roxb.

H.–*Buckripathi*.

Used as medicinal in Moluccas.

Lower Himalayas up to 6,000 ft., Khasia Hills and the Andaman Islands.

D. cinnabari Balf. f.

H.–*Hiradukhi*; M.–*Kandamurgarittam*.

Stops haemor., astrin.

Benzoic acid, cinnamic acid (*Pharm. J.*, 1883, 361); stem yields resin (Burkill, I, 858; Dymock, Warden, & Hooper, III, 504).

E. Africa and S. Arabia.

DRACOCEPHALUM (*Labiatae*)

D. moldavica Linn.

H.–*Tukhmferunjmishk*.

Seeds—astrin., tonic, carmin., used as demulc. in fevers.

Plant—tonic, astrin., vulnerary.

Essen. oil (*Ber. Schimmel u. Co., Lpz.*, 1930, 21; *Trud. nauch. khim.-farm. Inst., Mosk.*, 1930, 5); oil may be employed as a source of citral (Wehmer, II, 1028; *Chem. Abstr.*, 1938, 3083; 1942, 3629).*

W. Temperate Himalayas and Kashmir, 7,000-8,000 ft.

D. royleanum Benth.; see **Lallemantia royleana** Benth.

DRACONTIUM (*Araceae*)

D. polyphyllum Linn.

Bo.–*Sevala*.

Used as emmen., also in haemorrhoids and asthma.

Cultivated in S. India.

DREGEA (*Asclepiadaceae*)

D. volubilis Benth. ex Hook. f.; see **Wattakaka volubilis** (Linn.) Stapf

DREPANOCARPUS (*Leguminosae*)

D. spinosus Kurz; see **Dalbergia spinosa** Roxb.

DROSERA (*Droseraceae*)

D. burmanni Vahl

H.–*Mukha-jali*.

Plant—powerfully rubft.

Naphthoquinone (Kirt. & Basu, II, 1006).

Throughout India in the plains and hills up to 8,000 ft.

D. indica Linn.

Properties expected similar to *Drosera burmanni* and *D. peltata*.

In Indo-China a maceration of the plant is applied topically to corns.

Deccan Peninsula particularly on the West Coast.

D. peltata Sm. = **D. lunata** Buch.-Ham.
H.–*Mukhajali*; P.–*Chitra*.

Crushed leaves—with or without salt used as a blistering agent.

Plant—used in the preparation of gold *bhasma* which is used as antisyp., alter., and tonic.

Leaves contain a proteolytic enzyme of the pepsin type (Wehmer, I, 420; Dymock, Warden & Hooper, I, 593; Nandkarni, 314).

Hilly regions throughout India up to 10,000 ft. in the Himalayas, and 8,000 ft. in the Nilgiris.

DRYMARIA (*Caryophyllaceae*)

D. cordata Willd.

Juice of plant—laxt. and antifebrile.

Herb—eaten in French Guiana as a salad for its cooling properties.

Tropical and sub-tropical India, extending westwards to the Punjab and ascending the Himalayas to 7,000 ft. in Sikkim.

DRYMOGLOSSUM (*Polypodiaceae*)

D. carnosum Hook.

Fronds—pectoral, diur., astrin., in China used in urinary calculus and rheumatism.

Common in Nepal, Sikkim and Bhutan at 2,000-5,000 ft.

DRYNARIA (*Polypodiaceae*)

D. quercifolia J. Smith syn. *Polypodium quercifolium* Linn.
Marathi–*Basingh*; S.–*Ashvakatri*; B.–*Garur*; Mal.–*Pannakilhanumanavala*.

Plant—used in phthisis, hectic fever, dyspep. and cough.

Rhizome—bitter astrin.

Fronds—used in Malaya for poulticing swellings.

Aqueous extracts possess anti-bacterial properties (*Sci. & Cult.*, 1950-51, 232; Burkill, I, 862).

Throughout India, in the plains or very low down in the mountains, on trees or rocks.

DRYOBALANOPS (*Dipterocarpaceae*)

D. aromatica Gaertn. f.

Diaphor., antisep., antisp., stim., in hysteria and dysmen.

Oleo-resin contains borneol, camphene, terpeniol, sesquiterpene, etc. (*Ber. Schimmel u. Co., Lpz.*, 1910, Oct., 139; 1912, April, 159; 1913, April, 31).

Sumatra and Borneo.

D. camphora Colebr.; see **D. aromatica** Gaertn. f.

DRYOPTERIS (*Polypodiaceae*)

D. barbigera (Moore) Kuntze

Rhizomes—possess anthelm. properties.

Filicin 2·1% (*Indian J. Pharm.*, 1952, 109); subst. for the European male fern.

Alpine Himalayas from Kashmir to Sikkim.

D. blandfordii (Hope) C. Chr.

Rhizomes—possess anthelm. properties.

Filicin 3·5% (*Indian J. Pharm.*, 1952, 109); subst. for the European male fern (Nayar & Chopra, 1951, 24).

Himalayas and Chamba.

D. filix-mas (Linn.) Schott
English–*Male Fern*.

Rhizomes—possess anthelm. properties.

Yields about 6 to 10% of ethereal extractive of which about 25% filicin (B.P.C., 360).

Great Britain and other temperate regions.

D. marginata (Wall.) Christ

Rhizomes—possess anthelm. properties.

Filicin 2·1% (*Indian J. Pharm.*, 1952, 109); subst. for the European Male Fern (Nayar & Chopra, 1951, 24).

Himalayas, 4,000-9,000 ft.

D. odontoloma (Moore) C. Chr.

Rhizomes—possess anthelm. properties.

Filicin 2·3% (*Indian J. Pharm.*, 1952, 109); subst. for the European male fern (Nayar & Chopra, 1951, 24).

Himalayas, throughout the Kashmir valley, at 5,000-10,000 ft.

D. schimperiana (Hochst.) C. Chr.

Rhizomes—possess anthelm. properties.

Filicin 4·4% (*Indian J. Pharm.*, 1952, 109); subst. for the European male fern.

Himalayas, common in Mussoorie at 7,000 ft.

DRYPETES (*Euphorbiaceae*)

D. confertiflora Pax & Hoffm. syn. *Cyclostemon confertiflorus* Hook. f.

Fruits—used as fish poison.

Western Ghats.

D. macrophylla Pax & Hoffm. syn. *Cyclostemon macrophyllus* Blume

Fruit pulp—bitter, poisonous.

Western Ghats and Andamans.

DURANTA (*Verbenaceae*)

D. plumieri Jacq.; see **D. repens** Linn.

D. repens Linn. syn. *D. plumieri* Jacq.

Plant—believed to be poisonous.

Leaves contain a saponin and the fruits an alk. analogous to narcotine; macerated fruits yield a juice which even in dilutions of 1: 100 parts of water is lethal to mosquito larvae; the action is less marked on culicine larvae; the juice can be used as a larvicide in ponds and swamps (*Meded. PlTuin, Batavia*, 1899, 122; *Indian J. agric. Sci.*, 1940, 35; Wehmer, II, 1023; *J. Malar. Inst. India*, 1939, 85).

Much cultivated in India as a hedge plant.

DURIO (*Bombacaceae*)

D. zibethinus Linn.

Fruit—used by the Malays as tonic.

Decoct. of roots—used for fever when it has lasted three days.

Leaves and roots—used in a compound for fever.

Leaves—used in medicinal bath for fever.

In Java fruit-walls used externally for skin complaints, and ashes of the skin given after childbirth.

Analysis of fruit (*Hlth Bull.*, No. 23, 1951, 44; *Trop. Agriculturist*, 1943, 14).

Cultivated in south India for its edible fruit, in lower elevations of the Nilgiris and some parts of the West Coast.

DYSOPHYLLA (*Labiatae*)

D. auricularia Blume

In Malaya the leaves powdered with lime rubbed on the abdomen for colic.

Decoct. of the plant—used as a lotion for rheumatism.

Sikkim, E. Bengal, Assam, Singbhum, Poona and S. India.

DYSOXYLUM (*Meliaceae*)

D. hamiltonii Hiern

Assam–*Gendhelipoma, Keotai.*

Bark—used internally for stomach pain.

Sikkim, Assam, Sylhet, Eastern Himalayas up to 2,500 ft.

D. malabaricum Bedd.

Kan.–*Bilibudlige, Bilidevadaru*; Mal.–*Purippa, Vellakil*; Tam.–*Purippa, Vellaiyagil.*

Decoct. of wood—used in rheumatism.

Wood oil—used in ear and eye diseases.

Evergreen forests of Western Ghats from North Kanara southwards ascending to 3,000 ft.

ECBALLIUM (*Cucurbitaceae*)

E. elaterium A. Rich.

Ind. Baz.–*Kateri-indrayan.*

Narcotic, used in malaria and hydrophobia; powerful hydragogue cath. used for evacuation of dropsy, especially in nephritic patients.

Glucd., elaterin, ecballin, prophetin (*C.R. Acad. Sci., Paris*, 1906, 1161; 1909, 566; *Ber. dtsch. chem. Ges.*, 1906, 3380; *J. chem. Soc.*, 1909, 1985; *Pharm. J.*, 1909, 501); elaterin is the active principle (Thorpe, IV, 259).*

A native of South Europe, is cultivated in Britain and South Europe.

ECBOLIUM (*Acanthaceae*)

E. linneanum Kurz = **E. viride** (Forsk.) Merrill

B. & H.–*Udajati*; Marathi–*Dhaktaadulsa*; Tam.–*Nilambari*; Tel.–*Chihatiquratappa*; Mal.–*Odiyamadantha.*

Roots—in jaundice, menor. and rheumatism.

Decoct. of leaves—given for stricture.

Plant—used for gout and dysuria.

Konkan, W. Ghats, S. Mahrata Country, Deccan, Carnatic and north east India.

ECHINOCHLOA (*Gramineae*)

E. crus-galli Beauv. syn. *Panicum crus-galli* Linn.

B.–*Burashama*; H.–*Samak, Sanwah*; S.–*Jalsamoka*; Tel.–*Peddawundu*; Tam.–*Oothupul*; P.–*Barasanwak*; Bo.–*Sarvank, Banti.*

Plant—used in diseases of spleen and to check haemor.

Common throughout the greater part of India, especially in wet places and rich soils, and up to elevations of 6,000 ft.

E. frumentacea Link syn. *Panicum frumentaceum* Roxb.

Bo.–*Bavto*; H. & B.–*Sanwa*; S.–*Shyama*; Tel.–*Chamalu*; P.–*Sawank*; Tam.–*Kudraivali pillu*; Marathi–*Samul.*

Plant—useful in biliousness and constipation.

Cultivated over the greater part of India, and on the Himalayas up to 6,500 ft.

E. stagnina Beauv. syn. *Panicum stagninum* Retz.

B.–*Dul*; Bo.–*Banti*; Kan.–*Kadu dabhai hullu*; Tel.–*Bontha oddu.*

Decoct. of pith—used in Philippines as diur.

Found throughout India in stagnant pools and marshes, on banks of lakes and tanks and in cultivated fields.

ECHINOPS (*Compositae*)

E. echinatus Roxb.

H.–*Utakanta, Gokru*; Marathi–*Utanti*; S.–*Kantalu, Utati*.

Plant—alter., diur., nerve tonic, used in hoarse cough, hysteria, dyspep., scrofula and ophthalmia.

Powdered roots—applied to wounds in cattle to destroy maggots; mixed with acacia gum, applied to the hair to destroy lice.

More or less throughout India, ascending to 5,000 ft. in the hills.

ECHITES (*Apocynaceae*)

E. dichotoma Roxb.; see **Vallaris solanacea** O. Ktze.

ECLIPTA (*Compositae*)

E. alba Hassk.

S.–*Bhringaraja, Kesaraja*; H.–*Bhangra*; B.–*Kesuti, Kesuria*; Marathi–*Maka*; Tam.–*Garuga*; Tel.–*Galagara*.

Plant—tonic and deobstruent in hepatic and spleen enlargements, emetic.

Plant juice—in combination with aromatics administered for catar. jaundice.

Leaves—in scorpion-sting.

Leaf juice—along with honey used as remedy for catarrh in infants.

Root—emetic, purg., applied externally as antisep. to ulcers and wounds in cattle.

Alk. ecliptine (Dymock, Warden & Hooper, II, 268); alk. nicotine 0·078% (*J. Indian. chem. Soc.*, 1943, 181; *Chem. Abstr.*, 1944, 1609).

Common weed in moist situations throughout India, ascending up to 6,000 ft. on the hills.

E. prostrata Roxb.; see **E. alba** Hassk.

EDGEWORTHIA (*Thymelaeaceae*)

E. gardneri Meissn.; see **E. tomentosa** Nakai

E. tomentosa Nakai syn. *E. gardneri* Meissn.

Nep.–*Aryili*.

Plant—fish poison.

Rootstock and stem—used in China as remedy for buboes.

Central and Eastern Himalayas, Assam, Nepal, Bhutan and Sikkim, 5,000-7,000 ft.

EHRETIA (*Boraginaceae*)

E. aspera Willd.

P.–*Chamror*; Marathi–*Kupta*; Tel.–*Tella juvi*.

Decoct. of fresh roots—in venereal diseases.

Deccan Peninsula extending northwards to Uttar Pradesh and Punjab.

E. buxifolia Roxb.; see **E. microphylla** Lam.

E. microphylla Lam. = **Carmona microphylla** (Lam.) G. Don syn. *E. buxifolia* Roxb.

H. & Bo.–*Pala*; Tam.–*Kuruvingi*; *Tel.–Bapanaburi*.

Root—alter., used in debility and syphilis, antid. to vegetable poison.

Decoct. of leaves—used in Philippines for cough and stomach troubles.

Glucd. (*Ber. dtsch. pharm. Ges.*, 1899, 214); leaves contain chlorogenic acid (Wehmer, II, 1017).*

N. Circars, Deccan and Carnatic.

E. obtusifolia Hochst. ex DC.; see **E. aspera** Willd.

EICHHORNIA (*Pontederiaceae*)

E. crassipes Solms

B.–*Kachuri pana*; Mal.–*Kalavazha*; Tam.–*Akasa thamarai*; Tel.–*Pisachithamara*.

In Kedah the flowers regarded as medicine for the skin of horses.

Fresh leaves contain 52·1-57·6 mg. of carotene per kg. (*Chem. Abstr.*, 1948, 2691; *J. sci. industr. Res.*, 1949, 119B).

A floating plant forming dense masses and covering still, warm water, all over India.

ELAEAGNUS (*Elaeagnaceae*)

E. angustifolia Linn. syn. *E. hortensis* Bieb.

Tibet–*Sirshing*; H.–*Shiulik*; Pers.–*Zinzeid*.

Oil from seeds—with syrup as an electuary used in catar. and bronchial affections.

Juice of flowers—used in Spain for malignant fevers.

Bark contains alk. eleagnine and another viscous oily alk. (*J. gen. Chem., Moscow*, 1946, 139, 775; *Chem. Abstr.*, 1946, 6754; 1947, 1390; 1951, 2490; Henry, 1949, 773).; plant contains traces of essen. oil (*Chem. Abstr.*, 1934, 3180).

W. Himalayas, Kashmir and western Tibet, 5,000-10,500 ft.

E. hortensis Bieb.; see **E. angustifolia** Linn.

E. latifolia Linn.

B.-*Guara*; Bo.-*Ambgul*; H.-*Ghiwain*; Tam.-*Kulari*; Mal.-*Kayalampuvalli.*

Flowers—cardiac, astrin.

Fruit—astrin.

Widely distributed throughout the hilly parts of India.

E. umbellata Thunb.

P.-*Bammerwa, Ghiwain, Ghain*; Gharwal-*Geowain.*

Flowers—stim., cardiac, astrin.

Seeds—used as stim. in coughs.

Expressed oil—used in pulmonary affections.

Temperate Himalayas, from Kashmir to Nepal, 3,000-10,000 ft. and in Manipur.

ELAEIS (*Palmae*)

E. guineensis Jacq.

English—*African Oil Palm.*

In Guinea oil applied to wounds as vulnerary, used as liniment for rheumatism and courbature.

Oil rich source of carotene, can be used in place of cod liver oil for correcting vitamin A deficiency (*Indian J. med. Res.*, 1937-38, 11).

Cultivated in India in botanical gardens and in Travancore. A native of Africa.

ELAEOCARPUS (*Elaeocarpaceae*)

E. floribundus Blume

Infusion of bark and leaves—used as a mouth wash for inflamed gums.

Eastern Himalayas and Assam.

E. ganitrus Roxb. = **E. sphaericus** K. Schum.

S., Tam., Tel. & Mal.-*Rudraksha*; H.-*Rudraki*; B.-*Rudrakya*; Bo.-*Rudraksh.*

Fruit—used in diseases of the head and epileptic fits.

Bihar, Bengal, Assam, Madhya Bharat, Bombay and Nepal, and occasionally cultivated as an ornamental tree.

E. oblongus Gaertn.

Mal. - *Malankara*; Marathi - *Khas*; Tam.-*Bikki.*

Fruit—used as an emetic, also in rheumatism, pneumonia, ulcers, leprosy, dropsy and piles.

Western Ghats, ascending to 6,000 ft.

E. petiolatus Wall. syn. *E. integer* Wall.

Juice of leaves—used in Malaya as an application in sunstroke.

A root preparation—given in fevers. Assam.

E. serratus Linn.

B.-*Jalpai*; Tam.-*Ulang-karei*; Kan.-*Perinkara*; Mal.-*Avil.*

Leaves—used in rheumatism, antid. to poison.

Fruits—used in dysen. and diar.

Fruit contains citric acid; leaves contain vitamin C; seeds contain a fixed oil (*Bull. agric. chem. Soc. Japan*, 1932, 141; *Chem. Zbl.*, 1933, I, 3089; *Chem. Abstr.*, 1933, 201, 348; 1941, 1832).

Eastern Himalayas up to 3,000 ft., evergreen forests of North Kanara and western coast down to Travancore.

E. tuberculatus Roxb.

Kan.-*Dandele, Bhutali*; Mal.-*Navati, Pilahi*; Tam.-*Rutthracham.*

Decoct. of the bark—used in haemetemesis, indigestion and biliousness.

Nuts—used as remedy for rheumatism., typhoid fever and epilepsy.

From Kanara southwards through Western Ghats in Coorg, Mysore, and Travancore and common in the Nilgiris, Palni and Anamalai Hills.

ELAEODENDRON (*Celastraceae*)

E. glaucum Pers.

H. & P.-*Bakra*; Bo.-*Butapala*; B.-*Chikyeng*; Tam.-*Karuvali, Pujari*; Tel.-*Nirija.*

Powdered leaves—sternutatory, used as fumigatory to rouse women from hysterical syncope, and as snuff to relieve headache..

Fresh root bark—rubbed into a paste with water applied to swellings.

Cold water extract of crushed roots—used as emetic.

Bark and leaves contain 8-13.5 and 8-15% tannin respectively (*Indian For. Leafl.*, No. 72, 1949, 10).

Sub-Himalayan tract and outer valleys, up to 6,000 ft., Ravi to Sikkim, Bundelkhand, Bihar, Madhya Bharat, Konkan, W. Ghats, W. coast of Madras State, Deccan, Carnatic and N. Circars. Also occasionally planted as an ornamental tree in gardens.

ELEPHANTOPUS (*Compositae*)

E. scaber Linn.

S.-*Gojihva*; H.-*Gobhi*; B.-*Gojialata*; Bo.-*Hastipata*; Tam. & Mal.-*Anashovadi.*

Plant—astrin., cardiac tonic, alter., febge., in snake-bite.

Decoct. of roots and leaves—emol., given in dysuria, diar., dysen. and swellings or pains in stomach.

Root—given to arrest vomiting; powdered with pepper applied to toothache.

Bruised leaves—boiled in coconut oil applied to ulcers and eczema.

Alcoholic extract of whole shoot shows antibiotic activity (*Indian J. med. Res.*, 1949, 169).

Through the hotter parts of India.

ELETTARIA (*Zingiberaceae*)

E. cardamomum Maton

S.–*Ela*; H. & B.–*Choti-elachi*; Bo.–*Elachi*; Tam.–*Yelakkai*; Tel.–*Yelakkayalu.*

Seeds—arom., stim., stomch., carmin., diur.

Essen. oil (*Ber. Schimmel u. Co., Lpz.*, 1897, Oct., 9; 1910, Oct., 30; *Liebigs Ann.*, 1908, 90; *Pharm. J.*, 1899, 105; *Amer. J. Pharm.*, 1910, 167; *J. Soc. chem. Ind., Lond.*, 1924, 137; *J. Indian Inst. Sci.*, 1925, 155; *J. Ass. off. agric. Chem., Wash.*, 1934, 283; *Chem. Zbl.*, 1934, II, 1382; Finnemore, 178; *Indian Fmg*, 1949, 501; *Chem. Abstr.*, 1934, 5178); principal constituents of the oil are: cineol, terpineol, terpinene, limonene, sabinene, and terpineol in the form of formic and acetic acids (*J. sci. industr. Res.*, 1949, 157**B**).

Malabar, on the W. Ghats, between 2,500-5,000 ft., wild or cultivated.

ELEUSINE (*Gramineae*)

E. aegyptiaca Desf.; see **Dactyloctenium aegyptium** Beauv.

E. corocana Gaertn.

B.–*Marua*; Bo.–*Nagli*; H.–*Mandua, Mandal*; Kan.–*Ragi*; S.–*Ragi, Rajika*; Tam.–*Kelvaregu*; Tel.–*Ragulu.*

Grains—tonic, cooling, useful in biliousness, astrin. (*J. Indian Inst. Sci.*, 1928, 91).

Cultivated in all parts of India.

E. indica Gaertn.

H.–*Malnkuri, Mandla*; Tam.–*Thippa ragi*; Bo.–*Mahar nachni.*

Whole plant, especially root—considered sudorific and febge. in Cambodia, used in liver complaints.

In wet plains and low hills of India up to 6,500 ft., commonly seen in pasture grounds and roadsides.

ELSHOLTZIA (*Labiatae*)

E. cristata Willd.

In Annam flowering tops given as diur.

In China the drug regarded as carmin., stomch. and astrin.

Throughout the Himalayas and Assam hills up to 9,000 ft. Introduced in the Nilgiris.

EMBELIA (*Myrsinaceae*)

E. ribes Burm. f.

S.–*Vidanga*; P.–*Babrung*; H.–*Baberang*; B.–*Biranga*; Bo.–*Vaivarang, Vavadinga*; Tam., Tel. & Kan.–*Vayuvilanga.*

Dried fruit—anthelm., astrin., alter., tonic, in scorpion-sting and snake-bite.

Decoct. of dried fruits—used for fevers and diseases of chest and skin.

Infusion of roots—given for coughs and diar.

Embelic acid (*Arch. Pharm., Berl.*, 1900, 15; *Apothekerztg, Berl.*, 1913, 699); drug contains embelin 2·5-3·1, quercitol 1·0, and fatty ingredients 5·2%; an alk., christembine, a resinoid, and volatile oil (U.S.D., 1441; *Indian For. Bull., N.S.*, No. 102, 1941; *J. Amer. chem. Soc.*, 1948, 71; *J. Indian chem. Soc.*, 1929, 577); drug has no effect on hookworm and tapeworm but effective in the treatment of ascariasis (*Indian med. Gaz.*, 1947, 66); aqueous extracts of fruit show anti-bacterial activity against *Staphylococcus aureus* and *Escherichia coli* (*Indian J. med. Res.*, 1949, 169).

Throughout India up to 5,000 ft.

E. robusta C.B. Clarke (Fl. Br. Ind.), non Roxb.; see **E. tsjeriam-cottam** A.DC.

E. tsjeriam-cottam A.DC. syn. *E. robusta* C.B. Clarke (Fl. Br. Ind.), non Roxb.

H.–*Bayabirang*; Bo.–*Barbatti.*

Fruit—antisp., carmin., anthelm.

Dried bark of root—used for toothache.

Dried berries yield 1·6% embelin, 0·15% potassium hydrogen oxalate and 7.5% fatty ingredients (*Indian For. Bull., N.S.*, No. 102, 1941).

Throughout the greater part of India up to 5,000 ft.

EMBLICA (*Euphorbiaceae*)

E. officinalis Gaertn. syn. *Phyllanthus emblica* Linn.

B.–*Amla, Amlaki*; H.–*Amla, Aonla*; Kan.–*Amalaka*; Mal.–*Nelli*; S.–*Adiphala, Amalaka*; Tam.–*Nelli*; Tel.–*Amalakamu.*

Fruit—acrid, cooling, refrig., diur., laxt.

Raw fruit—aper.

Dried fruit—useful in haemor., diar., and dysen.; in combination with iron used for anaemia, jaundice and dyspep.

Fermented liquor prepared from the fruit—used in jaundice, dyspep. and cough.

Sherbet of amla with lemon juice—taken for arresting acute bacillary dysen.

Exudation from incisions on the fruit—used as external application for the inflam. of the eye.

Flowers—cooling, refrig., aper.

Root and bark—astrin.

Seeds—used for asthma, broncht. and biliousness.

Fruit rich natural source of vitamin C; fruit successfully used in the treatment of human scurvy (Minor Forest Products, Mysore, 1945, 55; *Biochem. J.*, 1936, 1014; *Indian J. med. Res.*, 1939, 429; *Ann. Biochem.*, 1942, 205; 1941, 307; *Nature, Lond.*, 1944, 684); seeds contain fixed oil, phosphatides and essen. oil (*J. sci. industr. Res.*, 1951, 88B; *Annu. Progr. Rep., Cen. Drug Res. Inst., Lucknow*, 1951-52); fruits, bark and leaves rich in tannin (*Indian For. Leafl.*, No. 72, 1944, 9; *Biochem. J.*, 1936, 1014; *Chem. Abstr.*, 1931, 230; Burkill, I, 921).*

Common in the mixed deciduous forests of India ascending to 4,500 ft. on the hills. Often cultivated in gardens and homeyards.

EMILIA (*Compositae*)

E. sagittata DC. syn. *C. flammea* Cass.

Used medicinally for children in Lagos.

A native of China, naturalized in India. Cultivated in gardens.

E. sonchifolia DC.

H.–*Hirankhuri*; B.–*Sadhimodi, Sudhimudi*; Bo.–*Sadamandi*; Mal.–*Mulshevi*.

Decoct. of plant—used as a febge. in infantile tympanites and in bowel complaint.

Juice of leaves—in eye inflam., night-blindness and sore ears.

Root—used for diar.

Throughout India in waste places and cultivated fields ascending to 4,000 ft. in the hills.

ENGELHARDTIA (*Juglandaceae*)

E. polystachya Radlk.

Assam–*Chhal-bih, Lewa*.

Bark—used to intoxicate and kill fish.

Hills of Assam up to 4,000 ft.

E. spicata Blume

Assam–*Wakgru*; B.–*Bolas*; H.–*Silapoma*.

Bark—used as fish poison.

Bark contains a resin which is used in medicine (*Indian For. Leafl.*, No. 72, 1949, 10; Wehmer, I, 212).

Eastern Himalayas and Assam up to 6,000 ft.

ENHYDRA (*Compositae*)

E. fluctuans Lour.

S.–*Hilamochi*; H.–*Harkuch*; B.–*Hingcha*.

Leaves—laxt., useful in skin and nervous affections, antibil., demulc.

Dry plant yields an essen. oil (0·21%), stigmasterol (0·05%) and a minute quantity of a bitter substance (*J. Indian chem. Soc.*, 1952, 374).

Bengal, Assam and Bihar.

ENICOSTEMMA (*Gentianaceae*)

E. littorale Blume

H.–*Chota-chirayata*; Bo.–*Kadavinayi*; S. & B.–*Nagajivha*; Tam. & Mal.–*Vallari*.

Plant—bitter, stomch., tonic, laxt.; dried and powdered is given with honey as a blood purifier and in dropsy, rheumatism, abdominal ulcers, hernia, swellings, itches and insect poisoning.

Bitter principle (*Arch. Pharm., Berl.*, 1869, 229; *Pharm. J.* 1874, 481); plant contains bitter glycoside and ophelic acid (Dymock, Warden & Hooper, II, 515; Wehmer, II, 971).

Throughout India up to 1,500 ft., from the Punjab and Gangetic Plain to Ceylon, more frequent near the sea, not known in Bengal.

ENTADA (*Leguminosae*)

E. phaseoloides Merrill syn. *E. pursaetha* DC.; *E. scandens* Benth.

H.–*Chian, Gila*; B.–*Gilagach*; Assam–*Gila-lewa*; Bo.–*Gardal*; Tam.–*Chillu, Sillu*; Tel.–*Gilatige*.

Seeds, stem and bark—poisonous.

Seeds—fish poison, considered tonic, emetic, antiper. and anthelm.

Paste prepared from seeds—applied locally for inflammatory glandular swellings.

Stem—emetic.

Juice of wood and bark—external application for ulcers.

Saponin, glucd., alk. (*Bull. Inst. bot. Buitenz.*, 1902, 20; *J. Pharm. Chim., Paris*, 1909, 162; *Arch. Pharm., Berl.*, 1903, 614); two amorphous saponins, isolated from seeds in a total yield of 5·5%, which have a strong haemolytic action on human red blood cells and have a depressant effect on the respiratory system and inhibit the movements of unstriped muscles of the intestine and uterus (*Indian J. med. Res.*, 1940, 469).*

Central and E. Himalayas, up to 4,000 ft. in Sikkim, E. Bengal, Bihar, Orissa, ghat forests of the Bombay State, hill forests of Northern Circars, the Deccan and Western Ghats from S. Kanara to Travancore.

E. pursaetha DC.; see **E. phaseoloides** Merrill

E. scandens Benth.; see **E. phaseoloides** Merrill

EPHEDRA (*Gnetaceae*)

E. gerardiana Wall. syn. *E. vulgaris* Hook. f. (Fl. Br. Ind.), non A. Rich.

P.–*Asmania, Budagur*; Bushahr–*Rachi, Khanda phag*; Ladakh–*Tse, Trano*.

Liquid extract—for controlling asthmatic paroxysms.

Tincture of ephedra—cardiac and circulatory stim.

Decoct. of stems and roots—remedy for rheumatism and syphilis in Russia.

Juice of berries—in affections of the respiratory passages.

Alks. ephedrine and pseudo-ephedrine (*Indian J. med. Res.*, 1929, 770; 1930, 647; 1931, 177); total alk. content in Indian ephedras varies from 0·28 to 2·79% (Chopra, 147-149; *J. Indian chem. Soc. industr. Edn*, 1938, 143; Wealth of India, III, 178); ephedrine is the principal alk., and in pharmacological action is similar to adrenaline (Wealth of India, III, 179).

Drier regions of temperate and alpine Himalayas, from Kashmir to Sikkim at 7,000-16,000 ft., frequently met with at Pangi (Chamba), Lahul and Spiti (Kulu), Chini and Kilba — Kailash Ranges of Kanawar (Bashahr), Shali hills (north of Simla), Kashmir and Ladakh.

E. intermedia Schrenk & Mey.

Pushtu–*Oman*.

Therapeutic properties similar to *E. gerardiana*.

Alks. epherdrine and pseudo-ephedrine (Chopra, 147-149; *J. Indian chem. Soc. industr. Edn*, 1938, 143; Wealth of India, III, 178); total alk. content of green stems ranges from 0·7 to 2·33%, of which only about one-tenth ephedrine, the rest being pseudo-ephedrine (Wealth of India, III, 178-179).

Pangi, Kanawar and to a lesser extent in Kashmir, Kulu and Jaunsar.

E. major Host syn. *E. nebrodensis* Tineo

Therapeutic properties similar to *E. gerardiana*.

Alks. ephedrine and pseudo-ephedrine (Chopra, 147-149; *J. Indian chem. Soc.*, 1938, 143; Wealth of India, III, 178); among the Indian ephedras this species is the richest source of ephedrine; plants from Lahul contain over 2·5% total alks. of which nearly three-fourths is ephedrine (Wealth of India, III, 178).

Lahul.

E. nebrodensis Tineo; see **E. major** Host

E. vulgaris Hook. f.; see **E. gerardiana** Wall.

EPILOBIUM (*Onagraceae*)

E. angustifolium Linn.

Decoct., infusion or cataplasm of leaves and roots—astrin.

Leaves contain about 10% pyrogallol tannin. 1-2% extract of the leaves possesses antiphl. action; roots contain tannin, gallic acid, mucilage and pectin (Wealth of India, III, 180; *Chem. Abstr.*, 1947, 7673; Wehmer, II, 864).

Western Himalayas at 7,000-13,000 ft. and Assam.

E. hirsutum Linn.

Herb—poisonous, causes epileptiform convulsions.

Sap of herb—used as application for warts in some parts of South Africa.

Leaves secrete malic acid (U.S.D., 1443; Wehmer, II, 1313).

Western Himalayas up to 7,000 ft.

EQUISETUM (*Equisetaceae*)

E. arvense Linn.

Herb—used as diur. in Germany, has haemostatic and haemopoietic properties, considered useful in dropsy, gravel and kidney affections; the ashes of the plant useful in acidity of the stomach and in dyspep. (U.S.D., 1443; *Chem. Abstr.*, 1937, 3149; 1939, 3966, 4672; 1935, 1881; Wren, 179).

Himalayas at high altitudes.

E. debile Roxb.

P.–*Trotak, Nari, Matti*; Santh.–*Burukatkom-charec*.

Plant—cooling medicine, given in gonor.

All over India, along shady streams.

ERAGROSTIS (*Gramineae*)

E. cynosuroides Beauv.; see **Desmostachya** bipinnata Stapf

ERANTHEMUM (*Acanthaceae*)

E. roseum R. Br. syn. *Daedalacanthus roseus* T. Anders.

Bo.–*Dasmuli*; H.–*Gulsham*; Tam.–*Nilamulli*.

Root—in leucor., promotes growth of foetus in cattle.

Konkan, Deccan, S. Mahrata Country, N. and S. Kanara.

EREMOSTACHYS (*Labiatae*)

E. acanthocalyx Boiss.

Quetta–*Bishkhaf*.

Plant—considered poisonous.

W. Punjab, N.W. Frontier Province and Baluchistan.

E. superba Royle ex Benth.
Plant—employed as fish poison.
W. Himalayas and Siwalik hills.

E. vicaryi Benth.
P.–*Gurgunna, Rewandchini.*
Seeds—cooling, fish poison.
W. Punjab, Salt Range and Baluchistan.

ERIA (*Orchidaceae*)

E. pannea Lindl.
Vern.–*Kurakubong.*
Plant—used in medicinal bath given for ague (Burkill, I, 936).
Eastern Himalayas and Assam.

ERIGERON (*Compositae*)

E. asteroides Roxb.
Bo.–*Maredi, Sonsali*; Assam–*Bonoriakopat.*
Plant—used as a stimulating diur., in febrile conditions.
Throughout India, up to 4,000 ft. in Sikkim.

E. canadensis Linn.
S.–*Palita, Jarayupriya, Makshikavisha.*
Herb—astrin., stim., haemostatic and diur., used in diar., dysen. and uterine haemor.
Oil—used in diar., dysen., internal haemor., bronchial catarrh, and cystitis.
Essen. oil (*Pharm. Rev.*, 1905, 81; 1906, 326; *Ber. Schimmel u. Co., Lpz.*, 1894, Oct., 73; 1922, 20); essen. oil—*d*-limonene (*Chem. Zbl.*, 1934, II, 2300); erigron oil consists chiefly of *d*-limonene and terpineol (Thorpe, IV, 333; U.S.D., 1443; Finnemore, 829).*
W. Himalayas, Punjab and Upper Gangetic Plain, up to 3,000 ft., Kashmir valleys, Assam, W. Ghats and the Nilgiris, up to 7,000 ft.

E. sumatrensis Retz. syn. *E. linifolius* Willd.
Leaves—used in Malaya for rheumatism and lumbago.
Leaves and roots—used for poulticing.
Garden weed or as an escape in some parts of India.

ERIOBOTRYA (*Rosaceae*)

E. japonica Lindl.
H.–*Lokat, Logat*; Kan.–*Lakkote*; Tam.–*Nokkotta.*
Fruit—considered sedative, used in allaying vomiting and thirst.
Flowers—expect.
Infusion of leaves—in diar.
Principal constituents of ripe fruit are laevulose, sucrose and malic acid; amygdalin in pericarp of unripe fruit (Winton & Winton, II, 606; *Hlth Bull.*, No. 23, 1951, 46; Wehmer, I, 439; *Biochem. J.*, 1949, 401); analysis of fruit (*Chem. Abstr.*, 1942, 2340); seeds contain amygdalin (*Chem. Abstr.*, 1942, 2340; Wehmer, I, 439); leaves contain *d*-sorbitol, ascorbic acid oxidase and vitamin B (*Jt Publ. imp. agric. Bur.*, No. 10, 1947, 108; Wehmer, I, 439; *Chem. Abstr.*, 1938, 621, 7486; 1940, 4863).
Grown nearly throughout India, up to 5,000 ft.

ERIOCAULON (*Eriocaulaceae*)

E. sexangulare Linn.
Used as a drug in China (Burkill, I, 938).
Deccan Peninsula, from Kanara southwards.

ERIODENDRON (*Bombacaceae*)

E. anfractuosum DC.; see **Ceiba pentandra** (Linn.) Gaertn.

ERIOGLOSSUM (*Sapindaceae*)

E. rubiginosum Blume syn. *E. edule* Blume
H.–*Ritha*; Tam.–*Korali, Manipangam*; Tel.–*Ishi rashi, Undurugu*; Oriya–*Sona mahanga, Nunga.*
Leaves and roots—used in Malaya for poulticing.
Decoct. of roots—given in fevers.
Decoct. of seeds—used for whooping cough (Burkill, I, 938).
North-east India, Deccan Peninsula, Andaman and Nicobar Islands.

ERIOLAENA (*Sterculiaceae*)

E. quinquelocularis Wight
Bo.–*Budjaridhamun*; Tam.–*Naiunnam, Malamtutti*; Kan.–*Kattale, Gomajjige*; Mal.–*Vetinar.*
Poultice of root—used to heal wounds.
Bombay State: Konkan, W. Ghats, Deccan, S. Mahrata Country; Madras State: Deccan, Sandur hills of Bellary, hills of Coimbatore, W. Ghats from Mysore to Travancore, at 2,000-4,000 ft.

ERODIUM (*Geraniaceae*)

E. cicutarium L'Herit.
Herb—recommended for dropsy, used in dysen. in Africa.
Extract of herb—used as uterine haemostatic in Europe.
No specific oxytocic principle isolated (U.S.D., 1443; *Chem. Abstr.*, 1943, 2882; 1947, 2477; Watt & Breyer-Brandwijk, 82; Wehmer, I, 587).
North-western parts of India, ascending to 9,000 ft.; also in the Nilgiris.

E. moschatum L'Herit.
Herb—antipyr.
Tincture—used in dysen. in Africa.
Nilgiris, probably as a garden escape.

EROPHILA (*Cruciferae*)

E. verna (Linn.) E. Mey. ex Garcke syn. *E. vulgaris* DC.

In Spain the plant is considered astrin. and vulnerary and is used as remedy for whitlow.

The plant contains mustard oil (*J. sci. industr. Res.*, 1947, *suppl.*, 32; *J. Bombay nat. Hist. Soc.*, 1939, 704).

Kashmir, at 5,000-6,000 ft.

E. vulgaris DC.; see **E. verna** (Linn.) E. Mey. ex Garcke

ERUCA (*Cruciferae*)

E. sativa Mill.

S.–*Bhutaghna, Siddartha*; H.–*Taramira*; B.–*Shwetsursha*; P.–*Assu, Tara.*

Seeds—vesic., acrid and used like mustard.

Tender leaves of the plant—considered stim., stomch., diur. and antiscor.

Essen. oil (*Pharm. Ztg, Berl.*, 1912, 520; *Ber. Schimmel u. Co., Lpz.*, 1912, October, 105; *J. Indian Inst. Sci.*, 1926, 52A).

Cultivated in north India, and met with in Western Himalayas, up to 10,000 ft.

ERVATAMIA (*Apocynaceae*)

E. coronaria Stapf = **E. divaricata** (Linn.) Alston syn. *Tabernaemontana coronaria* R. Br.

B., Bo., H. & S.–*Tagar*; Tam.–*Nandiyavattam*; Tel.–*Gandhitagarapu.*

Wood—refrig.

Milky juice—used for diseases of eye.

Root—acrid, bitter, used as local anodyne and chewed for relief of toothache.

Bark of stem and root contains a crystalline substance and alks. tabernaemontanine and coronarine; the alks. are pharmacologically active (*Quart. J. Pharm.*, 1939, 174; *Chem. Abstr.*, 1939, 8356; *J. sci. industr. Res.*, 1942-43, 374B; Henry, 1949, 501).

Upper Gangetic Plain, Garhwal, E. Bengal, Khasia Hills, Assam, N. Circars and hills of Vizagapatam. Also cultivated in gardens for ornamental purposes.

E. dichotoma (Roxb.) Blatter syn. *Tabernaemontana dichotoma* Roxb.

P.–*Pilikarbir*; Mal.–*Kunnampala, Utalam*; Tam.–*Kandalaippalai, Kattalaripalai.*

Seeds—purg., narcotic, poisonous.

Leaves and bark—purg., cath.

Milky sap—cath.

Root and bark—in scorpion-sting.

A crystalline alk. isolated from root and stem bark (Wealth of India, III, 193).

W. Ghats at low elevations.

E. heyneana T. Cooke syn. *Tabernaemontana heyneana* Wall.

Marathi–*Nagkuda*; Kan.–*Bilikodsalu, Nagarkuda*; Mal.–*Kundalapala.*

Uses of plant parts similar to *E. coronaria.*

Konkan, S. Mahrata Country, N. Kanara, W. Ghats in Malabar and Travancore, up to 3,000 ft.

ERVUM (*Leguminosae*)

E. lens Linn.; see **Lens culinaris** Medic.

ERYCIBE (*Convolvulaceae*)

E. paniculata Roxb.

Santh.–*Kari*; Tam.–*Unamkodi*; Tel.–*Puttapalatige*; Mal.–*Irimpiyatali.*

Bark—in cholera.

Throughout the greater part of India from Oudh eastwards and southwards to Ceylon, Andaman and Nicobar Islands.

ERYNGIUM (*Umbelliferae*)

E. caeruleum Bieb.

H.–*Dudhali*; Urdu–*Salelimisri*; P.–*Kandu, Dudhali, Pahari gajar.*

Root—nerve tonic, aphrodis.

Ashes of plant—for haemorrhoids.

Kashmir and Western Himalayas, 5,000-6,000 ft.

E. foetidum Linn.

Assam—*Jongali-memedo, Podomosolla.*

Root—stomch.

Herb yields volatile oil 0·02-0·04%. Root contains saponin (Finnemore, 635; *Chem. Abstr.*, 1932, 3788; Wehmer, II, 874).

Assam, up to 5,000 ft.

ERYSIMUM (*Cruciferae*)

E. asperum DC. syn. *E. arkansanum* Nutt.

Seeds contain cheiroline, resembling quinine in pharmacological action (Wehmer, I, 417; Henry, 1949, 649).

Grown in Indian gardens.

E. repandum Linn.

Kash.–*Hamadan.*

Plant—used in Spain as antiscor.

Seeds—given in fever in Persia.

Kashmir, at 5,000-7,000 ft.

ERYTHRAEA (*Gentianaceae*)

E. roxburghii G. Don; see **Centaurium roxburghii** (G. Don) Druce

ERYTHRINA (*Leguminosae*)

E. stricta Roxb.

B. & Assam–*Madar*; Tam. & Mal.–*Mullumurukku*; Tel.–*Mullumodugu*; Kan.–*Keechaga*; S.–*Mura*.

Bark—used in powder form for biliousness, rheumatism, itch, burning sensation, fever, fainting, asthma, leprosy, epilepsy.

Flowers—antid. to poison.

Deciduous forests of Konkan, North Kanara, Malabar and Travancore, Assam and Manipur, extending westwards to Nepal.

E. suberosa Roxb.

Bo. & H.–*Pangra*; P.–*Thab*; Tam.–*Mullumurukku*; Tel.–*Barijama, Barijapu*; Kan.–*Kaduparivala*.

Bark—used in medicine.

Punjab Plain, Upper Gangetic Plain, Rajputana, Central and S. India. Often planted as an ornament and fence plant.

E. variegata Linn. var. **orientalis** (Linn.) Merrill syn. *E. indica* Lam.

S.–*Mandar*; H.–*Dadap*; B.–*Palitamandar*; Marathi–*Pangara*; Tam.–*Kaliyanamurukku*; Tel.–*Badisa*.

Bark—astrin., febge., in liver troubles, anthelm., as a collyrium in ophthalmia, antid. to snake-bite.

Leaves—laxt., diur., anthelm., galact., emmen., applied externally for dispersing venereal buboes and for relieving pain in joints.

Juice of leaves—vermifuge, cath.

Poisonous alk. (*Ber. dtsch. chem. Ges.*, 1890, 3537; *Apothekerztg, Berl.*, 1894, 11; *Ber. dtsch. pharm. Ges.*, 1899, 214); leaves contain mixture of alks.; hypaphorine present (*J. Annamalai Univ.*, 1933, 238; *Proc. Indian Acad. Sci.*, vol. 7A, 1938, 179; *Indian J. med. Res.*, 1934-35, 363); seeds contain alk. hypaphorine, saponin (*Philipp. J. Sci.*, 1932, 563; *Chem. Zbl.*, 1932, II, 2834; *Proc. Indian Acad. Sci.*, vol. 7A, 1938, 179; *Curr. Sci.*, 1945, 198; Burkill, I, 949); bark contains alks. (0·05%) including hypaphorine, an inert alk., betaine and choline (*Indian J. med. Res.*, 1934-35, 363; *Proc. Indian Acad. Sci.*, vol. 7A, 1938, 179).

Throughout India in deciduous forests and in Andaman and Nicobar Islands.

ERYTHROXYLUM (*Erythroxylaceae*)

E. acuminatum (Arn.) Walp. syn. *E. lucidum* Moon

Expressed juice of fresh leaves—used as anthelm. in Ceylon.

Alk. (*Pharm. J.*, 1889, 569).

Western Ghats, Wynaad and Palni Hills.

E. coca Lam.

Leaves—astrin., used as stim. and masticatory.

Leaves contain alk. cocaine, used in medicine as a local anaesthetic, and a number of other alks.; bark and seeds also contain cocaine (Wealth of India, III, 200; *Chem. Weekbl.*, 1908, 666; *Arch. Pharm., Berl.*, 1910, 303; *Bull. imp. Inst., Lond.*, 1912, 37; *Bull. Sci. pharm.*, 1932, 69; *Chem. Zbl.*, 1932, I, 3093; *Pharm. Ztg, Berl.*, 1934, 1041); Indian leaves contain 0·4-0·8% of alk. largely cocaine (Henry, 1949, 93); leaves also contain 0·06-0·13% essen. oil (*J. sci. industr. Res.*, 1947, *suppl.*, 68).

The plant was experimentally cultivated in Madras, Mysore, Bengal and the Ranchi Plateau, but proved a failure from commercial view point. Now occasionally found as an ornamental plant in some gardens in India.

E. lucidum Moon; see **E. acuminatum** (Arn.) Walp.

E. monogynum Roxb.

Tam.–*Devadaru, Chemanatti*; Tel.–*Devadaru, Gadara*; Kan.–*Devadaru*; Mal.–*Devataru*.

Infusion of wood and bark—stomch., diaphor., stim., diur., useful in slight cases of dyspep., and continued fever.

Leaves—refrig.

Essen. oil (*Ber. Schimmel u. Co., Lpz.*, 1924, 23); cocaine (*Ann. Jard. bot. Buitenz.*, 1888, 225; *J. Indian Inst. Sci.*, 1926, 145A; *J. Mysore For. Assoc.*, 1923, 4); leaves contain small quantity of alk. probably cinnamylcocaine and essen. oil; alk. produced no mydriasis or anaesthesia (*Arch. Pharm., Berl.*, 1938, 340; *Chem. Abstr.*, 1938, 8669).

N. Circars, Deccan and Carnatic in dry evergreen forests, and W. Ghats in dry hill forests of Travancore, up to 3,000 ft.

E. retusum Bauer

Alk. (*Ann. Jard. bot. Buitenz.*, 1888, 225).

E. Peninsula and Andaman Islands.

ETHULIA (*Compositae*)

E. conyzoides Linn.

In Liberia juice is squeezed into the eyes for headache; root with red pepper is given by enema for constipation; leaves are eaten by pregnant women to prevent abortion.

In Africa plant used as a remedy for intestinal parasites, colic and abdominal disorders; powdered leaves are applied to sprains and fractures.

Assam.

EUCALYPTUS (*Myrtaceae*)

E. citriodora Hook.

Tel.–*Talanoppi*.

Leaves yield essen. oil (0·5-2·0%) containing citronellal (65-80%), citronellol (15-20%) and esters (Wealth of India, III, 210).

Planted in the plains of north India and in the sub-montane tract. ' Grown in Malabar, the Nilgiris and Coorg.

E. globulus Labill.

M.–*Karpura maram*.

Oil from leaves—antisep., used in infections of the upper respiratory tract and certain skin diseases; mixed with equal amount of olive oil used as rubft. for rheumatism; also used in ointments for burns; mosquito repellent; internally used as a stimulating expect. in chr. broncht. and asthma.

Dried leaves — in form of tincture used in asthma, phthisis and chr. broncht.

Leaf decoct.—used as insect and vermin repellent.

Root—purg.

Leaves from the Nilgiris yield 0·9 to 1·2% essen. oil containing cineole (62%), pinene (24%), sesquiterpene, alcohols, [Wealth of India, III, 207; *Quart. J. Indian Inst. Sci.*, vol. 9(2), 1946, 57; *Chem. Abstr.*, 1947, 1812].

Introduced into India. Grows well in the Nilgiris (5,000-8,300 ft.), Anamalai and Palni Hills in S. India, Simla Hills (4,000-7,000 ft.) and at Shillong in Assam.

EUCHRESTA (*Leguminosae*)

E. horsfieldii Bennett

Seeds—bitter, used for diseases of chest and as contrapoison and tonic in Malaya.

Plant contains the alk. cytisine which belongs to the same pharmacological group as nictoine; plant possesses insecticidal properties (Burkill, I, 956; Henry, 1949, 117; Holman, 28).

Khasia Hills.

EUGENIA (*Myrtaceae*)

E. aromatica Kuntze; see **Syzygium aromaticum** (Linn.) Merr. & L. M. Perry

E. caryophyllata Thunb.; see **Syzygium aromaticum** (Linn.) Merr. & L. M. Perry

E. caryophyllifolia Lam.; see **Syzygium cumini** (Linn.) Skeels

E. hemispherica Wight; see **Syzygium hemispherium** (Walp.) Alston

E. jambolana Lam.; see **Syzygium cumini** (Linn.) Skeels

E. jambos Linn.; see **Syzygium jambos** (Linn.) Alst.

E. operculata Roxb.; see **Syzygium operculatum** Gamble

E. spicata • Lam.; see **Syzygium zeylanicum** DC.

EULOPHIA (*Orchidaceae*)

E. campestris Wall.

B.–*Salibmisri*, *Sung-misrie*; P. & H.–*Salibmisri*; Bo.–*Salum*; S.–*Amrita*, *Pranada*.

Rhizome—esteemed as tonic and aphrodis., used in stomatitis, purulent cough and heart troubles.

Throughout the greater part of India, mostly in the plains.

E. epidendraea Fischer syn. *E. virens* R. Br.

Tubers—used as vermifuge.

Dry areas of Bengal, Madhya Pradesh and the Deccan.

E. herbacea Lindl.

Tuberous roots—esteemed as salep.

W. Himalayas, Bengal and western parts of the Deccan Peninsula.

E. nuda Lindl.

S.–*Manya*; H.–*Goruma*; B.–*Budbar*; Bo.–*Mankand*.

Tubers—used for tumours, scrofulous glands of the neck, broncht. and diseases of blood and as vermifuge.

Tropical Himalayas from Nepal eastwards to Assam, and in the Deccan from Konkan southwards.

E. pratensis Lindl.

Marathi–*Satavari*.

Tubers—anthelm., used to remove scrofulous glands in the neck.

Apparently endemic in the W. Peninsula; found in the pasture lands of the Deccan, Sholapur district and in Belgaum.

E. virens R. Br.; see **E. epidendraea** Fischer

EUONYMUS (*Celastraceae*)

E. tingens Wall.

H.–*Kungku*; Simla–*Chopra*.

Bark—considered useful in eye diseases, and used in cases of chr. constipation and dyspep.

Temperate Himalayas from the Sutlej to Nepal, 6,500-10,000 ft.

EUPATORIUM (*Compositae*)

E. ayapana Vent.; see **E. triplinerve** Vahl

E. cannabinum Linn.
Assam–*Tongollati*.

Herb—diaphor., diur., antiscor., cath., emetic, used in jaundice, scurvy, for fomenting sores and ulcers.

In Indo-China herb used as emmen., and purg.

The plant contains a bitter substance, eupatorin, inulin and a resin (Wren, 169; Chopra, 488; *J. Bombay nat. Hist. Soc.*, 1940, 841; Wehmer, II, 1215).

Temperate Himalayas, 3,000-11,000 ft., Khasia Hills, 3,000-6,000 ft.

E. odoratum Linn.
Assam–*Assam lota*.

Fish poison.

A weed in Bengal and Assam.

E. triplinerve Vahl syn. *E. ayapana* Vent.

H. & B.–*Ayapana*; Tam. & Tel.–*Ayapani*.

Infusion of herb—stim., tonic, diaphor.

Decoct. of plant and juice of leaves—considered detergent in Philippines and applied to foul ulcers.

Decoct. of leaves—haemostatic.

Aqueous extract of dried leaves and shoots—cardiac stim.

Essen. oil (*Ber. Schimmel u. Co., Lpz.*, 1907, April, 14; 1908, April, 14; *Chemikerztg*, 1886, 623; Parry, I, 298; Finnemore, 827; Wehmer, II, 1215); two neutral crystalline constituents, ayapanin and ayapin with pronounced haemostatic properties isolated from the leaves, and both are non-toxic and effective when applied locally, or when administered by subcutaneous injection or by mouth (*J. Indian chem. Soc.*, 1936, 586; *Curr. Sci.*, 1936, 295; *Ann. Biochem.*, 1941, 311, leaves also contain carotene (*J. Indian chem. Soc.*, 1947, 358).

Planted in Indian gardens.

EUPHORBIA (*Euphorbiaceae*)

E. acaulis Roxb.

Juice—acrid, vesic.

Tropical Himalayas, Kumaon, Nepal, Oudh, Bengal and Konkan.

E. antiquorum Linn.

S.–*Vajrakantaka*; H.–*Tridhara-sehund*; B.–*Tikta sij*; Bo.–*Naraseja*; Marathi–*Narasya*; Tam.–*Vachirom*; Tel.–*Bomajemudu*; Mal.–*Chadurakalli*.

Plant—purg., digest., pungent.

Root-bark—purg.

Decoct. of stem—in gout.

Juice of plant—purg., irrit. in rheumatism and toothache, used in nervine diseases, dropsy, palsy, deafness, to kill maggots in wound, and application for warts and other cutaneous affections.

Euphorbin (*Arch. Pharm., Berl.*, 1886, 729); saline extract of the stem shows antibiotic activity (*J. sci. industr. Res.*, 1952, 261B).

Throughout the hotter parts of India, in dry places ascending to 2,000 ft. on hills.

E. atoto Forst. f.

In Indo-China the milky juice is used as emmen. and abortif. by women.

Malabar Coast from Kanara southwards and Andaman Islands.

E. dracunculoides Lam.

B.–*Chhagul-pupti*; H.–*Chagulputputi*; P.–*Kangi*; Tel.–*Tilla-kada*.

Fruit—used to remove warts.

Throughout India in the plains and low hills.

E. granulata Forsk.

Santh.–*Kanthaarak*; Las Bela–*Khirwal*.

Plant—considered to purify blood.

Punjab, Rajputana Desert, Malwa, Chota Nagpur and W. Peninsula.

E. helioscopia Linn.

H.–*Hirruseeah*, *Mahabi*; P.–*Ganda buti*, *Chatriwal*.

Root—anthelm.

Plant—cath.

Milky juice—applied to eruptions.

Seeds—with roasted pepper given in cholera; oil from seeds has purg. properties.

Saponin phasin (*Biochem. Z.*, 1919, 24; *Bull. Sci. pharm.*, 1926, 193; Wehmer, II, 697).

Common weed throughout the plains of Punjab and the Siwalik tract ascending to 8,000 ft. in the outer Himalayas. Introduced into the Nilgiris.

E. hirta Linn. syn. *E. pilulifera* auct. non Linn.

B.–*Baro-kheruie*; Bo.–*Nayeti*; H.–*Dudhi*; S.–*Pusitoa*; Tam.–*Amampatchaiarisi*, *Patchaiyarissi*; Mal.–*Nelapalai*.

Plant—used in diseases of children in worms, bowel complaints, cough.

Juice of plant—in dysen., and colic.

Decoct. of plant—in bronchial affections and asthma.

Latex of plant—used as application for warts (*Indian J. med. Res.*, 1949, 29).

Alk., essen. oil (*Pharm. J.*, 1909, 141; 1913, 506; 1923, 162); appears to contain two active principles one of which causes a spike phase in guinea pig ileum, and the other a relaxing action on smooth muscle (*J. Amer. pharm. Ass.*, 1948, 491; *Chem. Abstr.*, 1949, 855);

l-inositol and an alk. xanthorhamnin isolated (*J. Amer. pharm. Ass.*, 1951, 474; *Chem. Abstr.*, 1951, 7306, 10507; B.P.C., 1949, 337; Wehmer, II, 699; *Pacif. Sci.*, 1950, 167).

Throughout the hotter parts of India.

E. hypericifolia Linn.

Bo.–*Nayetti*; P.–*Hazardana*; H.–*Dudhi, Hakshardana*; S.–*Dugdhika*.

Infusion of dried leaves—astrin., used in dysen., diar., menor. and leucor.

Contains phenolic substance, essen. oil, glycoside and alk. (*Pharm. J.*, 1923, 162; Wehmer, II, 699).

Common throughout the hotter parts of India ascending to 4,500 ft. in the Himalayas.

E. lathyrus Linn.

B.–*Burg-sadab*; P.–*Sudab*.

Leaves—carmin.

Seeds—used in dropsy.

Capsules—intoxicate fish.

Euphorbon, enzymes, aesculetin (*Ber. dtsch. chem. Ges.*, 1890, 3347; *Chem. Weekbl.*, 1916, 1282; *Arch. Pharm., Berl.*, 1924, 449); produces gastro-intestinal irritation in sheep (*Aust. vet. J.*, 1939, 19; *Chem. Abstr.*, 1939, 6964).

A native of Central and S. Europe.

E. longifolia D. Don

Juice—applied to sores.

Nepal.

E. microphylla Heyne

B.–*Chota keruee*; Santh.–*Dudhiaphul*.

Plant—used as galact.

Bengal, Bundelkhand, Bihar and W. Peninsula.

E. neriifolia Linn.

S.–*Snuhi*; H.–*Sehund*; B.–*Mansasij*; Bo.–*Minguta*; Tam.–*Ilaikalli*; Tel.–*Akujemudu*; P.–*Gangichu*.

Milky juice—used as purg., rubft. and expect., to remove warts and cutaneous eruptions.

Root—in scorpion-sting and snake-bite, antisp., fish poison.

Orissa and Deccan. Cultivated elsewhere in India.

E. nivulia Buch.-Ham.

S.–*Patrasnuhi, Patta karie*; B. & H.–*Sij*; Bo.–*Newrang*; Tel.–*Aku-jemudu;* Tam.–*Nawagalli*.

Juice of leaves—purg., diur., cure for ear-ache; mixed with neem oil applied externally in rheumatism.

Root bark — in dropsy.

Dry and rocky regions practically throughout India and often planted.

E. peplus Linn.

Irrit. poisonous.

4·8% oleo-resin (*Bull. Sci. pharm.*, 1908, 444); neutral and acid saponins; (*Biochem. Z.*, 1919, 24); yields resin (5·5% of dry wt. of plant), which produced irritation of mucous membranes, 0·13% alk. and 3·0% glucosides; the latter two substances caused dilation of blood vessels, lowering of blood pressure and other toxic symptoms (*British vet. J.*, 1949, 128; *Chem. Abstr.*, 1949, 9240).

Introduced into India.

E. pilosa Linn.

Juice—acrid, irrit.

Roots—used in the treatment of fistular sores.

W. Himalayas, from Garhwal westwards to Murree.

E. pilulifera Linn.; see **E. hirta** Linn.

E. resinifera Berg.

Ind. Baz.–*Farfiyum*.

Purg., abortif., used in sciatica.

Euphorbon, euphorbol, euphorbia resin (*Arch. Pharm., Berl.*, 1905, 249; 1907, 699; 1928, 633; *J. prakt. Chem.*, 1929, 97); α- and β-euphorbol (*Arch. Pharm., Berl.*, 1931, 209; *Chem. Zbl.*, 1931, II, 1007).

Morocco.

E. rosea Retz.

Plant — used as a drastic purg. in Indo-China.

Deccan Peninsula.

E. rothiana Spreng.

Juice—acrid, irrit.

Hills of Madhya Bharat and the Deccan Peninsula, from Banda southwards, 4,000-6,000 ft.

E. royleana Boiss.

H.–*Thor, Shakarpitan*; P.–*Dandathor*; Garhwal—*Surai*.

Milky juice—anthelm., cath.

Plant—used as fish poison.

Outer dry slopes of Western Himalayas chiefly at 3,000-5,000 ft. Commonly grown in sub-Himalayan tracts and adjacent plains.

E. sanguinea Hochst. & Steud.

Plant—used as application to sore nipples in suckling mothers by the Sutos.

Baluchistan.

E. thomsoniana Boiss.

Kash.–*Hirtiz, Hirvi*.

Root-stocks—crushed and used as purg., detergent and for washing hair.

Kashmir, at elevations above 7,000 ft.

E. thymifolia Linn.

S.–*Laghududhika, Racta-vinda-chada*; H.–*Chotidudhi*; B.–*Dudiya, Shwetkeruee*; Bo.–*Nayeti*; Tam.–*Sittrapaladi*; Tel.–*Reddivari manubala*.

Dried leaves and seeds—arom., astrin., stim., laxt., given to children in bowel complaints.

Juice of plant—for ringworm, in snake-bite and skin diseases.

Root—used for amenor.

Essen. oil (*Perfum. essent. Oil Rec.*, 1935, 219); leaves and stems contain 5, 7, 4-trihydroxy flavone-7-glycoside (*J. agric. chem. Soc. Japan*, 1941, 483; *Chem. Abstr.*, 1942, 3625; 1935, 7016).

Throughout India in the plains and lower hills; ascending up to 5,500 ft. in Kashmir.

E. tirucalli Linn.

H.–*Konpal, Sehund*; B.–*Lankasij*; Bo.–*Shera*; S.–*Trikantaka, Ganderi*; Tam.–*Tirukalli, Kalli*; Tel.–*Chemudu*.

Milky juice—vesic., rubft., purg., counter-irrit., application for warts, rheumatism, neuralgia, toothache, in cough, asthma and ear-ache, fish poison.

Euphorbon (*Arch. Pharm., Berl.*, 1886, 729; *Ann. Chim. appl., Roma*, 1928, 540); from fresh latex *iso*euphorol isolated, dried latex contains a ketone euphorone (*J. sci. industr. Res.*, 1949, 234B; *J. chem. Soc.*, 1949, 2554; 1950, 1562).

Naturalized in the drier parts of Bengal, Deccan, S. India; elsewhere largely cultivated for hedges. A native of Africa.

E. trigona Haw.

Tel.–*Kattimandu*.

Milky juice—vesic., irrit., purg.

Powdered leaves—alone or with turmeric are used as poultice for boils.

Vegetative parts contain hydrocyanic acid; latex contains 1·5% caoutchouc (Burkill, I, 977; Wehmer, II, 698).

Dry rocky hills in the Deccan, and probably other parts of India and in the Andaman Islands.

E. turcomanica Boiss.

Plant—used as medicine for gripe. Baluchistan.

EUPHORIA (*Sapindaceae*)

E. longan Steud. syn. *E. longana* Lam.; *Nephelium longana* Camb.

B.–*Anshphal*; Bo.–*Wumb*; Mal.–*Pasakotta*; Tam.–*Puvatti*; Assam–*Nagalichi*.

Fruit—stomch., anthelm.

Aril—refrig. in fevers.

Dried aril—used as tonic in China and Indo-China.

Saponin (*Apothekerztg. Berl.*, 1893, 589; *Meded. PlTuin, Batavia*, 1900, 38; *Pharm. J.*, 1913, 369); seeds contain saponin and used in China for washing hair (Burkill, II, 1547; *Chem. Abstr.*, 1930, 5266).

Native of south-western India, occurs in the forests of Western Ghats from Konkan southwards to Tinnevelly hills up to 5,000 ft. Evergreen forests of upper Assam and in the hill districts, ascending to 3,500 ft. in Garo Hills. Cultivated in Bengal and other areas as an ornamental and shade tree.

EUPHRASIA (*Scrophulariaceae*)

E. officinalis Linn.

Herb—bitter, astrin., tonic, employed in lotions for general disorders of the eye; infusion of the dried herb has a soothing effect in conjunctivitis; also used internally in jaundice (U.S.D., 1450).

Medicinal properties of the drug probably lie in the arom. resinous substance (Wehmer, II, 1124; *Chem. Abstr.*, 1951, 4409; 1925, 93; 1926, 1691).

Temperate Himalayas from Kashmir to Kumaon at 4,000-13,000 ft. and in Sikkim at 10,000-12,000 ft.

EURYALE (*Nymphaeaceae*)

E. ferox Salisb.

S., H. & B.–*Makhana*; P.–*Jewar*; Tel.–*Mellunipadmamu*.

Seeds—in spermatorrhoea, tonic, astrin., deobstruent.

Common in fresh water tanks and jheels of northern, central and western India.

EURYCOMA (*Simarubaceae*)

E. longifolia Jack

Malay–*Penvar-pet*.

Bark and root—bitter, febge.

Bitter fatty oil (*Pharm. Weekbl.*, 1912, 1050).

Andaman Islands.

EVODIA (*Rutaceae*)

E. fraxinifolia Hook. f.

Nep. & B.–*Kanukpa*; Khasi–*Di-engsngiyat*.

Plant—used as antipyr. in Indo-China.

Subtropical Himalayas from Nepal to Sikkim, 4,000-7,000 ft., and Khasia mountains, 3,000-5,000 ft.

E. lunu-ankenda Merr.

S.–*Vanashempaga*; Assam–*Midaumabaphang*; Mal.–*Kanalei*.

Decoct. of root or root-bark—boiled in oil given to improve complexion.

Juice of leaves—in fever.

Infusion of flowers and leaves—used in Malaya as tonic and emmen.

Throughout the hills of Deccan Peninsula, and in Eastern Himalayas, Assam and Andamans.

E. meliaefolia Benth.

Assam–*Maiphak*; Orissa–*Ankhijhora*; Nep.–*Thulo khanakpa*; Lepcha–*Peju*.

Alk. berberine (*Chem. News*, 1895, 207; *Arch. Pharm., Berl.*, 1878, 337; Wealth of India, III, 233).

Assam, Eastern Himalayas, Orissa and Bihar.

E. roxburghiana Benth.; see **E. lunu-ankenda** Merr.

E. rutaecarpa Hook. f. & Thoms.

Assam–*Bora-asing*, *Muka-asing*.

Dried fruits—used as stim., carmin., and stomch. in China.

3 alks. evodiamine, rutaecarpine and wuchuyine; evodiamine and rutaecarpine on injection induce increased arterial pressure (*Chem. Zbl.*, 1923, III, 248; *J. Pharm. Chim., Paris*, 1916, 54; *J. pharm. Soc. Japan*, 1916, 416; *J. Amer. pharm. Ass.*, 1933, 716; Henry, 1949, 498; Wehmer, suppl., 88; *Chem. Abstr.*, 1950, 1954).

Temperate region of the Sikkim Himalayas and Assam at 5,000-10,000 ft.

EVOLVULUS (*Convolvulaceae*)

E. alsinoides Linn.

S.–*Vishnugandhi*; H.–*Sankhapushpi*; Bo.–*Shankha valli*; Tam.–*Visnukarandi*; Tel.–*Vishnukaranta*; Mal.–*Vistnaclandi*.

Plant — bitter, tonic, febge., vermifuge, in dysen.

Leaves—made into cigarettes smoked in chr. broncht. and asthma.

Alk. (Chopra, 489).

Common weed in open and grassy places almost throughout India, ascending to 6,000 ft. in the Himalayas.

EXACUM (*Gentianaceae*)

E. bicolor Roxb.

H.–*Bara-charayta*; Bo.–*Udichirayat*.

Plant—tonic, stomch., subst. for gentian and chiretta.

Konkan, Deccan, S. Mahrata Country, Madras State, N. Circars, Mysore, Coimbatore and W. Ghats.

E. lawii C.B. Clarke

Marathi & Tam.–*Marukozhunthu*; Mal.–*Manali*.

Plant—laxt., boiled with oil applied in eye disease; powdered and used in kidney diseases.

Western coast.

E. pedunculatum Linn.

Subst. for gentian and chiretta.

Throughout India.

E. tetragonum Roxb.

H.–*Ava-chiretta*; B.–*Koochuri*; Assam–*Sher-ri-takti*.

Plant—tonic in fevers, stomch. bitter.

Himalayas from Simla to Bhutan up to 5,000 ft., Upper Gangetic Plain, from Bengal and Chota Nagpur to Madhya Pradesh, N. Circars, and Khasia Hills to Burma.

EXCOECARIA (*Euphorbiaceae*)

E. acerifolia F. Didr.

H.–*Basingh*; Garhwal–*Dudhila*; Kumaon–*Phutkia*; Assam–*Dieng-bleikhlaw*.

Leaves—used in rheumatism.

W. and Central Himalayas from Nepal to Kumaon, 3,000-6,000 ft., and Khasia Hills.

E. agallocha Linn.

B.–*Gangwa*; Bo.–*Geva*; S.–*Agaru*; Tel.–*Thilla*; Tam.–*Kampetti*.

Juice—boiled in oil applied in rheumatism, leprosy and paralysis.

Decoct. of leaves—in epilepsy, application to ulcers.

Bark—emetic, purg.

Root—an ingredient of embrocations used for swellings of hand and feet.

Latex—purg., abortif., fish poison.

All parts of the plant contain acrid latex; bark contains tannin 10% (*J. Indian chem. Soc.*, 1943, 178; *Indian For. Leafl.*, No. 72, 1949, 11).

Coastal and mangrove forests of India and Andamans.

EXOGONIUM (*Convolvulaceae*)

E. purga Benth. syn. *Ipomoea purga* Hayne

Dried tubercles—hydragogue cath.

Purgative action is due to the resinous constituents—jalap resin—present in the drug in a concentration of 9-18% (B.P.C., 1949, 457; U.S.D., 602; Trease, 479; *Indian J. Pharm.*, 1951, 138).

Grown in the Nilgiris and Poona. Found as a garden escape in the Upper Gangetic Plain.

FAGONIA (*Zygophyllaceae*)

F. arabica Linn.; see **F. cretica** Linn.

F. bruguieri DC.; see **F. cretica Linn.**

F. cretica Linn.

H.–*Damahan*; Marathi–*Dhamasa*; P.–*Dama*; S.–*Dusparsha*; Tel.–*Chittigara*.

Plant—bitter, astrin., tonic, febge., in prophylactic against small pox, in dropsy, delirium and any disorder which arises from poisoning.

Leaves and twigs—cooling.

Deccan, W. Khandesh, Cutch, Sind, Baluchistan, Waziristan, W. Rajputana, Upper Gangetic Plain, Punjab and westwards to Afghanistan.

FAGOPYRUM (*Polygonaceae*)

F. cymosum Meissn.
P.–*Banogal.*

Grains—recommended as a diet in colic, choleraic diar., fluxes, and abdominal obstructions.

Hot MeOH (90%) extraction, washing with $CHCl_3$ and recrystallization from H_2O gives rutin 4 to 8·5% (*J. pharm. Soc. Japan*, 1951, 266; *Chem. Abstr.*, 1951, 7751.

Temperate Himalayas, 5,000-11,000 ft. Khasia Hills, 4,000-5,000 ft.

F. esculentum Moench
H.–*Kotu*; P.–*Ogal*; Assam–*Doron*; Kumaon–*Ogul*; Simla–*Phaphra.*

Grains—used in China in the same way as those of *F. cymosum.*

Seed flour—used in Spain as an emol. and resolv.

Plant yields glucd. rutin; seeds—poisonous substance, roots—oxymethyl anthraquinone (*Arch. Pharm., Berl.*, 1908, 241; *Zbl. Physiol.*, 1909, 685; *Bull. Sci. pharm.*, 1925, 27; 1926, 138).

Cultivated in the Khasia Hills, throughout the Himalayas and W. Tibet at elevations of 2,000-12,000 ft., and in the Nilgiris.

F. tataricum Gaertn.
P.–*Brapu, Drawo*; H.–*Kaspat.*

Bark—astrin.

Plant—slightly poisonous.

Cultivated throughout the Himalayas at 3,000-12,000 ft.

FAGRAEA (*Loganiaceae*)

F. fragrans Roxb.; see **Cyrtophyllum peregrinum** Bl.

F. imperialis Miq.

Bark—febge.

Alk. (*Meded. PlTuin, Batavia*, 1896, 17; 1899, 134).

Tenasserim, Malacca and Singapore.

F. racemosa Jack
Burm.–*Thithpaloo.*

Root bark—used in fever.

Malay Peninsula.

FARSETIA (*Cruciferae*)

F. aegyptiaca Turra
P.–*Farid-buti.*

Plant—considered specific for rheumatism and taken as a cooling medicine after pounding.

Punjab.

F. hamiltonii Royle
P.–*Farid-buti.*

Plant—considered specific for rheumatism and taken as a cooling medicine after pounding.

Sind, Baluchistan, W. Rajputana and the Punjab.

F. jacquemontii Hk. f. & Th.
P.–*Farid-buti, Farid-muli, Lathia, Mulei.*

Plant—considered specific for rheumatism and taken as a cooling medicine after pounding.

Sind, W. Rajputana and N. India.

FERONIA (*Rutaceae*)

F. elephantum Correa; see **F. limonia** (Linn.) Swingle

F. limonia (Linn.) Swingle syn. *F. elephantum* Correa
S.–*Kapittha*; H.–*Kavitha*; B.–*Kathbel*; Bo.–*Kavit*; Tam.–*Narivila*; Tel.–*Velaga.*

Fruit—astrin., stomch., stim.

Leaves—arom., carmin.

Pulp—applied externally as a remedy for bites of venomous insects and reptiles.

Bark—prescribed for biliousness.

Leaves yield 0·73% essen. oil (*J. Indian chem. Soc.*, 1949, 342; *Chem. Abstr.*, 1950, 2706; *J. Pharm., Lond.*, 1905, 289).

Indigenous in S. India. Cultivated in many parts of India.

FERULA (*Umbelliferae*)

F. alliacea Boiss.
S.–*Hingu*; H. & B.–*Hing*; M.–*Kayam.*

Gum-resin—in scorpion-sting, intestinal antisep., carmin., in hysteria and epilepsy.

Essen. oil (*Pharm. J.*, 1875, 401; *Arch. Pharm., Berl.*, 1878, 309; *J. Indian chem. Soc.*, 1940, 49).

Eastern Persia and Khorassan.

F. foetida Regel
S.–*Hingu*; H. & B.–*Hing*; Bo.–*Hingra*; M.–*Kayam.*

Uses same as of *F. alliacea.*

Essen. oil, ferulic acid, organic sulphur compound (*Liebigs Ann.*, 1849, 23; 1866, 64; *Chem. & Drugg.*, 1910, 205; *Arch. Pharm., Berl.*, 1891, 1; *Ber. Schimmel u. Co., Lpz.*, 1912, April, 25); contains gum 25%, resin 40-64%, essen. oil 6·17% containing pinene, organic disulphide and umbelliferone (*Arch. Pharm., Berl.*, 1936, 461; *Chem. Abstr.*, 1937, 1951; *Food*, 1943, 125, 154; *Chem. Abstr.*, 1944, 1076).*

Eastern Persia and western Afghanistan.

F. galbaniflua Boiss. et Buhse
Ind. Baz.–*Jawashir*; H.–*Gandabiroza.*

Gum-resin—expect., antisp., stim., used in chr. broncht. and asthma, uterine tonic.

Essen. oil (*Pharm. J.*, 1915, 356; *Parfum. mod.*, 1921, 82; *Ber. Schimmel u. Co., Lpz.*, 1929, 44); latex contains resin 75%, gum 6·41%, essen. oil 19·61% (*Zh. prikl. Khim., Mosk.*, 1939, 102; *Chem. Abstr.*, 1939, 6525).*

A native of Persia.

F. jaeschkeana Vatke

Gum-resin—applied to wounds and bruises.

Latex contains resin 69·98%, gum 9·21%, essen. oil 14·81% (*Zh. prikl. Khim., Mosk.*, 1939, 102; *Chem. Abstr.*, 1939, 6525); essen. oil of fruit contains 91% d-α-pinene, 1·3% cumaldehyde, 5% azulene, 0·03% sulphur compounds and an aldehyde (*Bull. Univ. Asie cent.*, 1938, 119; *Chem. Abstr.*, 1940, 4522.

Kashmir.

F. narthex Boiss.

S.–*Hinguka*; H., B. & Bo.–*Hing*; Kashmir–*Anjudan*; Tam.–*Perungayam*.

Gum-resin—antisp., expect., anthelm., nervine stim., useful in asthma, whooping cough, flatulent colic, and in pneumonia and broncht. in children.

Leaves—diaphor., carmin.

Baltistan and Astor.

F. sumbul Hook. f.

Uses same as of *F. galbaniflua*.

Essen. oil umbelliferon (*Arch. Pharm., Berl.*, 1859, 1; 1899, 256; *Ber. Schimmel u. Co., Lpz.*, 1907 Oct., 63; *J. Amer. chem. Soc.*, 1916, 432).

Mountains to the south-east of Samarkand.

FIBRAUREA (*Menispermaceae*)

F. tinctoria Lour.

Yields a dye; alk. berberine (*Bull. Inst. bot. Buitenz.*, 1902, 11; *Arch. Pharm., Berl.*, 1906, 120).

Penang, Malacca, Cochin-China and Borneo.

FICUS (*Moraceae*)

F. arnottiana Miq.

S.–*Plaksha*; H.–*Paraspipal*; Tam.–*Kagoli*; Tel.–*Kallaravi*; Mal.–*Kallarayal*; Uriya–*Plokhyo*.

Leaves and bark—used in skin diseases.

Rajputana, Madhya Pradesh, Bihar and W. Peninsula.

F. asperrima Roxb.

H.–*Kalmnor*; Bo.–*Kharoti*; S.–*Kharapatra*; Tel.–*Karakabodda*; Tam.–*Irambarattan*.

Juice and bark—in enlargement of liver and spleen.

Alk. (Dymock, Warden & Hooper, III, 346).

Madhya Bharat and W. Peninsula.

F. bengalensis Linn.

S.–*Vata*; H.–*Bor*; B.–*Bar*; Bo.–*Vad*; Marathi–*Vada*; P.–*Bor*; Tam.–*Pudavam*; Tel.–*Peddamatti*.

Milky juice—applied externally for pains, in rheumatism and lumbago.

Infusion of bark—tonic, astrin., used in dysen., diar., diabetes.

Seeds—cooling, tonic.

Leaves—applied as poultice to abscesses.

Root fibres—in gonor. (*Hoppe-Seyl. Z.*, 1929, 93).

Sub-Himalayan tract and W. Peninsula, planted elsewhere.

F. benjamina Linn.

Assam—*Chilubor*; B.–*Pakur*; Bo.–*Pimpri*; M.–*Putra-juvi*.

Decoct. of leaves—mixed with oil applied to ulcers.

Milky juice—used against whitening of the cornea.

Milky juice contains wax and cerotic acid (*Bull. Jard. bot. Buitenz.*, 1923, 245).

Foot of E. Himalayas, Assam, Chittagong, Andamans, Chota Nagpur, N. Circars and Travancore.

F. carica Linn.

S.–*Anjira*; H. & B.–*Anjir*; Bo.–*Anjra*; Tel.–*Anjuru*; Tam.–*Simaiyatti*; P.–*Fagari*.

Fruit—demulc., aper., emol., nutri.

Milky juice from the fresh green fruit—acrid, used to destroy warts.

Proteose, amino acid, tyrosin (*Bull. Acad. Roum.*, 1916, 346); enzyme cravin (*Arch. Pharm., Berl.*, 1881, 226); lipase, protease (*C. R. Acad. Sci., Paris*, 1912, 56; *J. Amer. chem. Soc.*, 1928, 2012); carotin (*J. biol. Chem.*, 1932, 35); leaves yield 0·06% bitter substance ficusin and bergaptene (*Bull. chem. Soc., Japan*, 1936, 389; *Chem. Abstr.*, 1936, 7575); latex which resembles ficin and a globulin fraction are very toxic and had a strongly necrotic action on the skin (*Exp. Med. Surg.*, 1945, 11; *Chem. Abstr.*, 1945, 3071).

Baluchistan. Cultivated in N.W. India and the Deccan.

F. cunia Ham. ex Roxb.

H.–*Khewnau*; B.–*Jagya-dumur*; S.–*Kharapatra*; P.–*Kuri*; Mal.–*Poroh*; Tam.–*Taragadi*; Tel.–*Bommamatti*.

Fruit—given in aphthous complaints.

Fruit and bark—made into a bath used as a cure for leprosy.

Juice of roots—given in bladder complaints and boiled in milk, in visceral complaints.

Sub-Himalayan tract and outer hills from the Chenab eastwards up to 4,000 ft., Chota Nagpur, Eastern Satpura Hills, Khasia Hills and Chittagong.

F. dalhousiae Miq.

S.–*Somavalkhom*; Tam.–*Kallal*.

Fruit—used in heart diseases.

Leaves and bark—in liver complaints and skin diseases.

Nilgiris.

F. fistulosa Reinw.

Vern.–*Kathia-dimaru*; Khasi–*Kalapong*.

Decoct. of root—taken after childbirth in Pahang. .

Assam and Chittagong.

F. gibbosa Blume

S.–*Udumber*; Bo.–*Datir*; Garhwal–*Chanchri*; Tel.–*Tella-barinika*; Tam.–*Iradagam*; Uriya–*Korotosani*.

Root bark—stomch., aper.

Decoct. of root—aper.

Sub-Himalayan tract from the Jumna eastwards, Assam, Chittagong, Andamans, Bihar, Chota Nagpur, Madhya Pradesh and W. Peninsula.

F. glomerata Roxb.; see **F. racemosa** Linn.

F. heterophylla Linn. f.

S.–*Trayamana*; B.–*Bhui-dumur*; Tel.–*Buroni*; Tam.–*Kodiyatti*; C.P.–*Pakhur*; Mal.–*Vallitterakam*; Marathi–*Datir*.

Juice of root—used internally in colic.

Juice of leaves—mixed with milk in dysen.

Root bark—pulverized and mixed with coriander seed used as a remedy in cough and asthma.

Throughout the hotter parts of India.

F. hispida Linn. f.

S.–*Kakadumbura*; H.–*Konea-dumbar*; B.–*Kakdumur*; Bo.–*Rambal*; P.–*Rumbal*; Assam–*Khoskadumar*; Tam. & Mal.–*Peyatti*; Tel.–*Vetliyati*.

Fruit, seeds and bark—purg., emetic.

Saponin (Dymock, Warden & Hooper, III, 347).

More or less throughout India.

F. infectoria Roxb.; see **F. lacor** Buch.-Ham.

F. lacor Buch.-Ham.

S.–*Plaksha*; H. & P.–*Pilkhan*; B.–*Pakar*; Bo.–*Pipli*; Mal.–*Pepar*; Tam.–*Kurugu*; Tel.–*Badijuvvi*.

Decoct. of bark—used as a wash for ulcers, as an injection in leucor., as gargle in salivation.

Plains and lower hills of India.

F. oppositifolia Willd.; see **F. hispida** Linn. f.

F. palmata Forsk.

H.–*Anjiri*; P.–*Jamir*; Gujarati–*Pepri*; Tel.–*Medi*.

Fruit—demulc., laxt., used as diet in cases of constipation and in diseases of the lungs and bladder.

N.W. India, from the Indus eastwards to Oudh, ascending to 3,000 ft., in the Himalayas, Mt. Abu.

F. racemosa Linn. syn. *F. glomerata* Roxb.

S.–*Udumbara*; P.–*Kumbal*; H.–*Gular*; B.–*Jagya-dumur*; Bo.–*Umbar*; Tam., Tel. & Mal.–*Atti*.

Bark—astrin., given to cattle when suffering from rinder-pest.

Root—in dysen.

Sap of root—in diabetes.

Leaves—powdered and mixed with honey given in bilious affections.

Fruit—astrin., stomch., carmin., given in menor. and haemoptysis.

Milky-juice—in piles and diar.

Throughout India.

F. religiosa Linn.

B.–*Asvattha*; H. & P.–*Pipal*; Bo.–*Pipal*; Tam.–*Arasu*; Tel.–*Pippali*; S.–*Pippala*.

Bark—astrin., used in gonor.

Fruit—laxt.

Seeds—cooling, alter.

Leaves and young shoots—purg.

Infusion of bark—given internally in scabies.

Sub-Himalayan forests, Bengal and Madhya Bharat. Planted elsewhere.

F. retusa Linn.

B. & H.–*Kamrup*; Bo.–*Pilala*; S.–*Kuni*; Tel.–*Yerrajuvvi*; Tam.–*Kallichi*.

Juice of bark—in liver disease.

Powdered leaves and bark—in rheumatic headache.

Root-bark and leaves—boiled in oil application for wounds and bruises.

Chota Nagpur, Bihar, Madhya Bharat, W. Peninsula, S. India to Ceylon, Sundarbans and Andamans.

F. ribes Reinw. ex Blume

H.–*Chhota jangli anjir*; Tam.–*Chiriapeyatti*; Tel.–*Chinnaverriattipandu*; Mal.–*Cheriyakattatti*.

Uses similar to *F. hispida*.

S. Tenasserim and Malay Archipelago.

F. rumphii Blume

H.–*Pakar*; Assam–*Pakri*; Garhwal–*Kabaru*; B.–*Gaiaswat*; Marathi–*Pair*; P.–*Badha*.

Juice—used to kill worms, and given internally with turmeric, pepper and *ghi* for the relief of asthma.

Bark—in snake-bite.

Punjab, N. India, Assam, Madhya Bharat, W. Peninsula and S. India.

F. talboti G. King

S.–*Plaksha*; Tam.–*Itti*,. *Kalitti*.

Decoct. of the bark—used in ulcers, venereal diseases, diar., and leprosy.

S. Mahrata Country and N. Kanara.

F. tsiela Roxb.

S.–*Kaninika*; H.–*Jari*; Bo.–*Pimpri*; Tam.–*Ichi*; Tel.–*Peddajuvvi*; Mal.–*Koyali*.

Bark—used in colic.

Madhya Pradesh and W. Peninsula.

FIMBRISTYLIS (*Cyperaceae*)

F. junciformis Kunth

Santh.–*Bindimuthi*.

Root—given in dysen.

All over India from Kashmir to Madras, up to altitudes of 1,500-5,000 ft.

FLACOURTIA (*Flacourtiaceae*)

F. cataphracta Roxb.; see **F. jangomas** (Lour.) Raeusch.

F. jangomas (Lour.) Raeusch. syn. *F. cataphracta* Roxb.

S.–*Talisha*; H. & M.–*Talispatri*; B.–*Paniyala*; Bo.–*Jaggam*.

Fruit—for biliousness, in liver complaints.

Leaves—in diar., diaphor.

Decoct. of bark—for biliousness.

Kumaon, Orissa, Lower Bengal, Assam and Chittagong.

F. indica Merr. syn. *F. ramontchi* L'Herit.

H.–*Bilangra*; B.–*Bincha, Binja*; Bo.–*Swadu*; Marathi–*Kaker*; P.–*Kakoa*; Tam.–*Sottaikala*; Tel.–*Putikatada*.

Fruit—in jaundice and enlarged spleen.

Gum—given with other ingredients for cholera.

Sub-Himalayan tract and Outer Himalayas, ascending to 4,000 ft. from the Indus eastwards and in the adjacent plains, Upper Gangetic Plain, common in the Peninsula, W. Ghats, forests of the N. Circars and Deccan up to 3,000 ft.

F. ramontchi L'Herit.; see **F. indica** Merr.

F. sepiaria Roxb.

H.–*Kondai*; Bo.–*Atruna*; Mal.–*Kurumuli*; P.–*Kingro*; Tam.–*Kodumundi*; Tel.–*Kandregu*.

Infusion of leaves and roots—in snake-bite.

Bark—triturated in sesamum oil is used as a liniment in rheumatism.

Kumaon, dry jungles throughout Bengal, Bihar, Orissa, the Andamans, the W. Peninsula, scrub forests in all districts of the Madras State, especially on the Coromandel Coast and in the Deccan.

FLAGELLARIA (*Flagellariaceae*)

F. indica Linn.

Tam.–*Panambuvalli*; Tel.–*Vanachandra*; Mal.–*Panampuvalli*.

Leaves—astrin., vulnerary.

Throughout India, chiefly near the coast.

FLEMINGIA (*Leguminosae*)

F. chappar Ham.

B. & H.–*Salpan*; Oudh–*Kasraut*; Uriya–*Singapornno*.

Properties of the root similar to *F. strobilifera*.

Bengal, Bihar and S. India.

F. congesta Roxb.; see **F. macrophylla** Blume

F. congesta Roxb. var. **nana** (Fl. Br. Ind.); see **F. nana** Roxb.

F. grahamiana W. & A.

Resinous powder from the glands of the pod—used as anthelm. in West Africa and Southern Arabia.

Nilgiris.

F. macrophylla Blume syn. *F. congesta* Roxb. (Fl. Br. Ind. in part).

H. & B.–*Bara-salpan*; Bo. & Marathi–*Dowdowla*; Mal.–*Kamatteri*.

Roots—used as external application to ulcers and swellings, mainly of the neck (*J. chem. Soc.*, 1898, 660; *Pharm J.*, 1890, 213).

Throughout the hotter parts of India.

F. nana Roxb. syn. *F. congesta* var. *nana* (Fl. Br. Ind.)

H. & B.–*Bara-salpan*.

Roots—used in ulcers and swellings.

Upper Gangetic Plain, Bihar, Chota Nagpur and N. Kanara.

F. strobilifera R. Br.

H.–*Kusrunt*; Bo.–*Nundar*; Tel.–*Nallabaddu*; Mal.–*Kumalu*; Oudh–*Kasraut*.

Roots—used in epilepsy, hysteria.

From Sind, Rajputana and Bengal to S. India and Andamans.

F. tuberosa Dalz.

Bo.–*Birmova*.

Roots and tuber—astrin., useful in dysen. and leucor.

Konkan.

FLOSCOPA (*Commelinaceae*)

F. scandens Lour.

Lakhimpur–*Karahimlu*.

Juice of stem—put in sore eyes.

Throughout tropical India, in swamps from E. Nepal, Sikkim and the Khasia Hills to Travancore.

FLUEGGEA (*Euphorbiaceae*)

F. leucopyrus (Koen.) Willd.

Gujarati–*Shinavi*; M.–*Mappullandi*; P.–*Girthan*; Tam.–*Pulanji*; Tel.–*Puli*; S.–*Svetakamboja*.

Leaves—made into paste with tobacco used to destroy worms in sores.

Plant—fish poison.

Tannin 10% (Wehmer, II, 700).

Sub-Himalayan tracts of N. Oudh and Gorakhpur, outer ranges of the

Kumaon Himalayas up to 5,000 ft., Punjab plains, Sind, throughout the Bombay and Madras States.

F. microcarpa Blume; see **F. virosa** (Roxb. ex Willd.) Baill.

F. virosa (Roxb. ex Willd.) Baill. syn. *F. microcarpa* Blume

H.–*Dalme*; Bo.–*Pandharphali*; S.–*Nilishila*; Marathi–*Kodarsi*; Mal.–*Perinklavu*; Tam.–*Pula*; *Tel.–Tellapuli.*

Leaves—made into paste with tobacco used to destroy worms in sores.

Roots—used to cure gonor.

Plant—fish poison.

Tannin (Dymock, Warden & Hooper, III, 270; Wehmer, II, 700).

Throughout India, from Indus and Kashmir eastwards to Assam in the Himalayas up to 5,000 ft., and in the rest of India in deciduous forests.

FOENICULUM (*Umbelliferae*)

F. vulgare Mill.

S.–*Madhurika*; H.–*Bari-saunf*, *Saunf*; B.–*Pan-muhori*; Bo.–*Bari shopha*; Tam.–*Sohikirai*; Tel.–*Peddajilakaramu.*

Seeds—stim., arom., stomch., carmin. emmen.

Leaves—diur.

Root—purg.

Oil from seed—vermicide.

Essen. oil (*J. Indian Inst. Sci.*, 1925, 184; *Bull. imp. Inst. Lond.*, 1927, 107; *Ber. dtsch. pharm. Ges.*, 1913, 570).

Extensively cultivated in India.

FRANCOEURIA (*Compositae*)

F. crispa Cass; see **Pulicaria crispa** Schultz-Bip.

FRANKENIA (*Frankeniaceae*)

F. pulverulenta Linn.

Sind—*Khareeya.*

Demulc., arom., mucilaginous.

Sind, Baluchistan and Punjab.

FRAXINUS (*Oleaceae*)

F. excelsior Linn.

P.–*Kum, Sum.*

Bark—bitter, astrin., tonic, has febrifugal action.

Leaves—purg.

Tree yields manna.

Glucd. fraxin, essen. oil (*J. chem. Soc.*, 1858, 17; 1859, 126; *Ber. dtsch. chem. Ges.*, 1929, 120; *Chemikerztg*, 1911, 478; *Mh. Chem.*, 1934, 12).

W. Himalayas, 8,000-10,000 ft.

F. floribunda Wall.

H.–*Angan*; Nep.–*Kangu*; P.–*Angu*, *Hum, Sum.*

Manna is obtained by incision from the stem and it is used for its sweeting and slightly laxt. properties.

Temperate and subalpine Himalayas, 5,000-11,000 ft., from Kashmir to Bhutan, Assam and Khasia Hills.

F. ornus Linn.

H.–*Shirkhist*; M.–*Mena.*

Bark yields mannite and glucd. fraxin (*Arch. Pharm., Berl.*, 1872, 159; *Ber. dtsch. bot. Ges.*, 1916, 665).

Mountains of S. Europe and Asia Minor, extending in the Mediterranean region westwards to Corsica and E. Spain.

FRITILLARIA (*Liliaceae*)

F. cirrhosa D. Don

Dried corms—given in asthma, broncht., and tuberculosis.

Central and E. Himalayas and Sikkim 11,000-16,000 ft.

F. imperialis Linn.

Bulbs—emol., resolv., diur., heart poison.

Fresh plant—tox. alk. imperialine (*Ber. dtsch. chem. Ges.*, 1888, 3284).

Kashmir at 5,000-9,000 ft., abundant near Baramulla.

F. roylei Hook.

Bulbs—powdered and boiled with orange skin used for tuberculosis and asthma.

Contains alk. peimine (*J. Amer. chem. Soc.*, 1936, 1306; *Chem. Abstr.*, 1936, 5995); roots contain alk. peimine and propeimine (*J. Amer. chem. Soc.*, 1944, 1778; *Chem. Abstr.*, 1945, 3532); yields four new alks. peimisine, peimiphine, peimidine, peimitidine (*J. Amer. pharm. Ass.*, 1947, 215; *Chem. Abstr.*, 1947, 7677); a sterol isolated (*Sci. Rec., Chungking*, 1949, 381; *Chem. Abstr.*, 1951, 9071).

W. temperate Himalayas, 8,000-13,000 ft., from Kashmir to Kumaon.

FUCUS (*Fucaceae*)

F. distichus Linn.

Used in rheumatism and goitre.

On rocks on the coasts, North Atlantic Ocean.

F. nodosus Linn.

Used in scrofula and goitre.

A sea-weed in the northern temperate seas. Found in India along the sea-shore.

F. vesiculosus Linn.

Uses same as of *F. distichus.*

Shores of the United Kingdom, North Atlantic Ocean, N. Pacific Coast of America. In Indian Ocean on the Manora Rocks.

FUMARIA (*Fumariaceae*)

F. indica Pugsley
Plant—diur., diaphor., aper.
Over the greater part of India up to 8,000 ft. on the Himalayas, Baluchistan.

F. officinalis Linn.
H.–*Pit-papara*; M.–*Turu*.
Plant—laxt., diur.
Alk. fumarine (*Amer. chem. J.*, 1900, 249; *Arch. Pharm., Berl.*, 1901, 401; *Pharm. Ztg, Berl.*, 1887, 542); plant contains 0·5% pentatriacontane and 0·13% alk. identical with protopine (*Proc. nat. Inst. Sci. India*, 1937, 319; *Chem. Abstr.*, 1938, 2685); total alks. a mixture of at least 7 alks. consisting of l-protopine (0·05%), dl-tetrahydrocoptisine, cryptocavine, aurotensine, sinactine, alk. F 37, alk. F38 (*Canad. J. Res.*, 1938, 438; *Chem. Abstr.*, 1939, 3528).*
Persia.

F. parviflora Lam.
H.–*Pilpapara*; B.–*Bansulpha*; Bo.–*Pit-patra*; Marathi–*Pilpapda*; S.–*Parpataka*; Tam.–*Tusa*; Tel.–*Chatarsi*.
Dried plant—anthelm., diur., diaphor., aper., in low fever, to purify blood in skin diseases.
Baluchistan.

GAILLONIA (*Rubiaceae*)

G. aucheri Jaub. & Spach
Baluchistan–*Tusso*.
Leaves—smoked as cure for sore throat and scurvy.
Arabia, Persia, etc.

GALEGA (*Leguminosae*)

G. purpurea Linn.; see **Tephrosia purpurea** (Linn.) Pers.

GALEOPSIS (*Labiatae*)

G. tetrahit Linn.
Plant—expect., in phthisical complaints, antisp., resolv., detergent.
Infusion of plant—in pulmonary troubles.
Sikkim and Kashmir.

GALIUM (*Rubiaceae*)

G. aparine Linn.
Expressed juice of plant—aper., diur., antiscor.
Glucd. asperulosid (*Bull. Soc. Chim. biol., Paris*, 1926, 489; *C.R. Acad. Sci., Paris*, 1926, 865; Wehmer, II, 1181).
Temperate Himalayas and W. Tibet, ascending to 12,000 ft., from Kashmir and the Salt Range to Sikkim.

G. mollugo Linn.
Oxalic acid.
Mountainous parts of India, 3,000-10,000 ft.; throughout the Himalayas, Khasia Hills and the higher ghats of the W. Peninsula.

G. verum Linn.
Expressed juice or decoct. of fresh plant—employed in epilepsy and hysteria, applied externally in cutaneous eruptions.
Glucd. asperulosid (*C. R. Acad. Sci., Paris*, 1927, 1674; Wehmer, II, 1182); a glucd. obtained from the roots is a primveroside of rubiadin (*Nature, Lond.*, 1936, 38; *Chem. Abstr.*, 1936, 6381).
Western Himalayas, Kashmir 5,000-10,000 ft., and Lahul.

GARCINIA (*Guttiferae*)

G. atroviridis Griff.
Fruit—used medicinally by the Malays.
Upper Assam.

G. cambogia Desr.
Bo.–*Vilati-amli*; M.–*Aradal*.
Milky juice contains arabin, essen. oil, resin; rind of fruit—acids tartaric, citric and phosphoric (*Arch. Pharm., Berl.*, 1837, 172; *Pharm. J.*, 1846, 60); bark—tartaric acid 10·6% (*J. Indian chem. Soc.*, 1931, 469).
Mountains of the Western Peninsula, from Konkan to Travancore.

G. cornea Linn.
Lepcha–*Taksalkung*.
Tree—yields inferior kind of gamboge which is used medicinally.
E. Bengal to Tenasserim.

G. cowa Roxb.
B. -*Kau*; H.–*Cowa*; Nep.–*Kaphal*.
Gum-resin—used medicinally (*Pharm. J.*, 1908, 161).
E. Bengal, Assam, E. Peninsula and the Andaman Islands.

G. dulcis Kurz
Oily seeds—used as remedy for dysen. and chr. diar. in Malaya.
Malay Peninsula and the Malay Islands.

G. heterandra Wall.
Burm.–*Thanatdau*.
Gum-resin—used medicinally.
Pegu and Tenasserim up to 4,000 ft.

G. indica Chois.
H. & Bo.–*Kokam*; Tam.–*Murgal*; Mal.–*Punampuli*.
Fruit—antiscor., cooling, cholag., emol., demulc.
Bark—astrin.
Oil—soothing, used in skin diseases (*Pharm. J.*, 65; *J. Soc. chem. Ind., Lond.*, 1898, 991).

Konkan, N. Kanara, W. Ghats of Bombay, S. Kanara, Coorg, Wynaad, often cultivated.

G. mangostana Linn.

H. B. & Bo.–*Mangustan*; Mal.–*Manggusta*; Marathi—*Mangastin*; Tam.–*Sulambuli.*

Rind of fruit—astrin., useful in chr. diar., and dysen.

Bitter substance mangostin (*Arch. Pharm., Berl.*, 1891, 426; *Chemikerztg*, 1897, 719); α- & β-mangostin (*Liebigs Ann.*, 1930, 280; 1931, 62; *Proc. imp. Acad. Japan*, 1931, 254; *Bull. chem. Soc. Japan*, 1932, 1).

Cultivated on the W. Coast of the Madras State, Nilgiris and very rarely in the Bombay State.

G. morella Desr.

B.–*Tamal*; H.–*Tamel*; Mal.–*Pinnarpuli*; Marathi–*Tamil*; S.–*Tamala*; Tam.–*Irevalsinni*; Tel.–*Pasupuvarne.*

Gum resin—purg., anthelm. used in dropsical affections, amenor., obstinate constipation and as vermifuge (*Arch. Pharm., Berl.*, 1891, 426; *Pharm. J.*, 1883, 69).

Dry pericarp of seeds yields 10% morellin (*J. chem. Soc.*, 1937, 853; *Chem. Abstr.*, 1937, 5368.

E. Bengal, Khasia Hills, evergreen forests of N. Kanara, W. Ghats from S. Kanara and Mysore to Travancore, up to 3,000 ft.

G. pedunculata Roxb.

B.–*Tikul.*

Fruit malic acid (*Pharm. J.*, 1908, 161).

Forests of N.E. Bengal, near Rungpore and Goalpara, and in Sylhet where it is cultivated for its pleasant acid fruit.

G. purpurea Roxb.; see **G. indica** Chois.

G. xanthochymus Hook. f.

H.–*Dampel, Tamal*; B.–*Tamal*; Marathi–*Jharambi*; Bo.–*Dampel*; S.–*Tamala, Tapinjha*; Tam.–*Kulavi*; Tel.–*Sitakamraku.*

Fruit—used for the same purposes as that of *G. indica.*

E. Bengal and E. Himalayas, N. Circars, Ganjam, W. Peninsula on the ghats from Bombay to N. Kanara, Mysore, Coorg, Nilgiris, N. Travancore up to 3,500 ft. and the Andamans.

GARDENIA (*Rubiaceae*)

G. campanulata Roxb.

Burm.–*Hsaythanpaya.*

Fruit—cath., anthelm., fish poison and larvicide.

Foot of the Sikkim Himalayas, Assam, Sylhet, Chittagong and Bihar.

G. floribunda Roxb.; see **Randia dumetorum** Lam.

G. florida Linn.; see **G. jasminoides** Ellis

G. gummifera Linn. f.

Bo.–*Dikamali*; C.P.–*Karmarri*; H.–*Dikamli*; Tam.–*Tikkamalli*; Tel.–*Karinguva.*

Gum—antisp., carmin., antisep., stim. in dyspep., anthelm., used in veterinary medicine to keep off flies from sores.

Gum dikenali (*Pharm. J. Trans.*, July, 21, 1877).

S. Mahrata Country, N. Kanara, N. Circars, Deccan and Carnatic to the foot of the N. Ghats of Madras State, and Malabar Coast.

G. jasminoides Ellis syn. *G. florida* Linn.

S.–*Gandharaj*; M.–*Karinga.*

Plant—antiper., cath., anthelm., antisp., externally antisep.

Root—in dyspep. and nervous disorders.

Often cultivated in Indian gardens, a native of Japan and China.

G. lucida Roxb.

H. & Marathi–*Dikamali*; Bo.–*Decamali*; S.–*Jantuka*; Tam.–*Tikkamalli*; Tel.–*Erubikki.*

Gum—used in cutaneous diseases and to keep off flies and worms.

Gum with essen. oil, bitter substance; (*J. chem. Soc.*, 1877, 551; 1879, 688; *C. R. Acad. Sci., Paris*, 1892, 1291).

Chittagong, Konkan, S. Mahrata Country, N. Kanara and all dry districts of Madras State.

G. turgida Roxb.

H.–*Thanella*; Marathi–*Khurphendra*; Tam.–*Nanjundam*; Tel.–*Kokkita*; M.P.–*Khemra.*

Root—a preparation of it used for indign. in children.

40% *d*-mannitol isolated from dried exudation (*Pharm. J.*, 1912, 391; *J. chem. Soc.*, 1925, 2176).

Upper Gangetic Plain, base of Himalayas from Garhwal to Bhutan, Bihar, Chota Nagpur, S. Mahrata Country, N. Kanara and all dry deciduous forests of Madras State.

GARUGA (*Burseraceae*)

G. pinnata Roxb.

H.–*Ghogar*; B.–*Jum*; Bo.–*Kurak*; Assam–*Gendelipoma*; Tam.–*Karuvembu*; Tel.–*Garuga.*

Fruit—stomch.

Juice of leaves—mixed with honey given in asthma.

Juice of stem—dropped into the eye to cure opacities of the conjunctiva.

Widely distributed throughout India, chiefly in mixed deciduous forests.

GASTROCHILUS (*Zingiberaceae*)

G. pandurata Ridley

Roots—used in dysen.

Essen. oil (*Ber. dtsch. chem. Ges.*, 1910, 138).

Konkan and the Andamans.

GAULTHERIA (*Ericaceae*)

G. fragrantissima Wall.

Nep.–*Machino*; Lepcha–*Kalomba.*

Oil from leaves—arom., stim., carmin., used in rheumatism, neuralgia, as flavouring agent and antisep.

Oil (*Ber. Schimmel u. Co., Lpz.*, 1911, Oct., 97; 1912, April, 129; *Indian For. Rec.*, vol. 5, pt. 8, 1917, 33); leaves yield 1·25% essen. oil (*Indian J. Pharm.*, 1941, 62; *Chem. Abstr.*, 1941, 6393).*

From Nepal to Bhutan at 6,000-8,000 ft., Khasia Hills, W. Ghats, the Nilgiris, Pulneys and Travancore, above 5,000 ft.

GELIDIUM (*Gelidiaceae*)

G. cartilagineum Gaill.

H.–*China-ghas.*

Demulc., mucilaginous, medium for growing germs.

Indian coasts. Coast of Japan.

GELONIUM (*Euphorbiaceae*)

G. multiflorum A. Juss.

H.–*Ban naringa*; Tel.–*Sarugata.*

Bark—considered a good tonic for gums, and prescribed for gingivitis in Cambodia; also used as purg. in hepatic troubles.

Bengal and the Circars, reaching northwards to the foot of the Sikkim Himalayas.

GENDARUSSA (*Acanthaceae*)

G. vulgaris Nees; see **Justicia gendarussa** Burm.

GENIOSPORUM (*Labiatae*)

G. prostratum Benth.

M.–*Nazel-nagai.*

Plant—considered febge.

Carnatic, on sandy ground, especially near the sea.

GENTIANA (*Gentianaceae*)

G. chirayita Roxb.; see **Swertia chirata** Ham. ex Wall.

G. dahurica Fisch.; see **G. olivieri** Griseb.

G. decumbens Linn. f.

Tincture of the plant—stomch.

Kashmir, 11,000-15,000 ft.

G. kurroo Royle

H. & B.–*Karu*; Bo.–*Phashanveda*; P.–*Nilakant.*

Root—tonic, stomch., febge., for urinary affections and as a *masala* for fattening horses.*

Kashmir and N.W. Himalayas, 5,000-11,000 ft.

G. olivieri Griseb. syn. *G. dahurica* Fisch.

Quetta-Pishin–*Agherpanrae.*

Plant—used as a sudorific.

W. Himalayas and Baluchistan.

G. tenella Fries

P.–*Teeta, Tita.*

Decoct. of the plant—given in fevers.

Kashmir and W. Himalayas, 10,000-14,000 ft.

GEOPHILA (*Rubiaceae*)

G. reniformis D. Don

Sylhet.–*Kudi-mankuni.*

Uses similar to Ipecacuanha.

Sylhet, Khasia Hills, Western Peninsula or the Ghats from Konkan southwards and the Andaman Islands.

GERANIUM (*Geraniaceae*)

G. lucidum Linn.

Plant—diur., astrin.

W. Himalayas, 6,000-9,000 ft.

G. molle Linn.

In Spain plant considered anodyne, astrin., vulnerary.

Leaves—enzyme (*C.R. Acad. Sci. Paris*, 1902, 1373).

Kishtwar and Kumaon.

G. nepalense Sweet

H. & P.–*Bhand, Bhanda.*

Plant—astrin., used in certain renal diseases.

All over the temperate Himalayas, 5,000-9,000 ft., Kuram Valley, Kashmir, Garhwal, Nepal, Sikkim, Khasia Hills, Manipur, Nilgiris and Pulney Hills.

G. ocellatum Camb.

H. & P.–*Bhanda.*

Plant—astrin., diur.

Hilly districts of N. India, from the Salt Range and Kashmir to Nepal, Bihar and Manipur.

G. pratense Linn.

Plant—used as vulnerary in Europe.

Roots contain bitter substance geranin (*Arch. Pharm., Berl.*, 1840, 29).

W. temperate Himalayas.

G. pusillum Burm. f.

Plant—used in Europe as anodyne, astrin. and vulnerary.

W. temperate Himalayas.

G. robertianum Linn.
Herb—astrin., haemostatic, applied to tumours and ulcers, given in gravels, ague and jaundice.
Bitter substance geranin (*Pharm. Ztg, Berl.*, 1924, 597; *Ber. dtsch. bot. Ges.*, 1917, 591).
W. temperate Himalayas, 6,000-8,000 ft., from Kashmir to Garhwal.

G. rotundifolium Linn.
Plant—diur., astrin.
Punjab, W. temperate Himalayas, from Kashmir to Garhwal.

G. sibiricum Linn.
Plant—astrin., diur. and vulnerary.
Kashmir.

G. wallichianum D. Don
H.–*Laljahri*; Kashmir–*Kaoashud*.
Herb—astrin., used as a cure for toothache, applied externally to eyes (*J. Soc. chem. Ind., Lond.*, 1890, 260).
Kuram Valley, Kashmir, Simla and Kumaon.

GERBERA (*Compositae*)

G. piloselloides Cass.
The Zulus apply infusion of the root, made with human urine, to the ear for earache; the Sutos use a milk decoct. or infusion for chest complaints.
Central and Eastern Himalayas, ascending to 7,000 ft. in Sikkim and Nepal. Khasia Hills 5,000 ft.

GEUM (*Rosaceae*)

G. alatum Wall.
Kash.–*Gogjimul*; Pers.–*Gunglujungli*.
Uses similar to *G. urbanum*.
Root—officinal in Kashmir.
Sub-alpine and alpine Himalayas, from Kashmir 9,000-12,000 ft., to Sikkim 12,000-15,000 ft.

G urbanum Linn.
Herb—astrin., styptic, tonic, febge., stomch., used in dysen., diar., sore throat and leucor.
Roots—considered astrin. and antisep. in Europe.
Roots contain essen. oil, glucd. gein, enzyme (*C.R. Acad. Sci., Paris*, 1905, 870; *J. Pharm. Chim., Paris*, 1905, 481).
Temperate W. Himalayas, 6,000-11,000 ft., from Kashmir to Kumaon.

GIRARDINIA (*Urticaceae*)

G. heterophylla Decne. var. **zeylanica**; see **G. zeylanica** Decne.

G. zeylanica Decne.
H.–*Bichua*; Mal.–*Anachchoriyanam*; P.–*Keri*; Assam–*Horusurat*; Tel.–*Gaddanelli*.
Leaves—used for headache and swollen joints.
Decoct.—given in fever.
Mt. Abu, Chota Nagpur and Western Peninsula.

GIRONNIERA (*Ulmaceae*)

G. reticulata Thwaites syn. *Celtis reticulata* Hk. f. & T.
Nep.–*Sukar*; Lepcha–*Sheekung*; Nilgiris–*Khomanig*; Ind. Baz.–*Narakiya wood*; Tam.–*Kodaittani*.
Plant—scraped fine and mixed with lemon juice used internally as a blood purifier in itch and other cutaneous eruptions, the body being at the same time anointed with it externally.
Crystalline substance like methyl indole or skatole (Dymock, Warden & Hooper, III, 317); alk. (*Proc. roy. Soc.*, 1890, 211).
Sikkim Himalayas, Assam and Western Peninsula.

GISEKIA (*Ficoidaceae*)

G. pharnaceoides Linn.
S. & B.–*Valuka*; H.–*Balukasag*; Bo.–*Valuchi-bhaji*; Tam.–*Manalikkirai*; M.–*Panekirai*; Tel.–*Isikedantikura*.
Plant—arom., aper., anthelm.
Gisekia, tannin (Dymock, Warden & Hooper, II, 106).
Punjab, Baluchistan, Rajputana Desert, Sind, Gujarat, Konkan, S. Mahrata Country, Deccan and Carnatic of Madras State.

GLINUS (*Ficoidaceae*)

G. lotoides Linn.; see **Mollugo lotoides** (Linn.) O. Kuntze

GLEICHENIA (*Gleicheniaceae*)

G. dichotoma Willd.; see **Dicranopteris linearis** (Burm.) Underwood

GLOCHIDION (*Euphorbiaceae*)

G. hohenackeri Bedd.
Marathi–*Bhoma*; Mal.–*Kuluchan*; Oriya–*Kalchia*.
Bark—given medicinally when stomach revolts against food.
W. Peninsula, Chota Nagpur and Orissa; very common in Konkan.

G. zeylanicum A. Juss.
Tam.–*Kumbalm*; Tel.–*Itepulla*; Mal.–*Nirvetti*.
Fruits—cooling, restor.
Leaves—in itches.
Bark—stomch.
Western Peninsula.

GLORIOSA (*Liliaceae*)

G. superba Linn.
S.–*Shakrapushpi*; H–*Kalihari*; B.–*Bishalanguli*; Bo.–*Karianag*; P.–*Kariari*; Tam.–*Akkinichilam*; Tel.–*Agnisikhha*.

Root—purg., cholag., anthelm., used in leprosy, parasitical affections of skin, piles, colic, in snake-bite and scorpion-sting.

Starch from root—given internally in gonor.

Alks. superbine, gloriosine (*Indian med. Gaz.*, 1880, 253; *Meded. PlTuin, Batavia*, 1899, 71; *J. chem. Soc.*, 1915, 835; *Ber. dtsch. chem. Ges.*, 1920, 2069); colchicine and other alkaloids (*Curr. Sci.*, 1941, 446; *J. Sci. industr. Res.*, 1952, 440B; *Nature*, 1953, 791).*

Throughout tropical India, ascending up to 7,000 ft. on the hills. Common in Mysore State.

GLOSSOCARDIA (*Compositae*)

G. bosvallia DC.

S.–*Pithari*; Bo.–*Phatursuwa*; H.–*Seri*; Marathi–*Patharsuva*; Tel.–*Parapalanamu.*

Plant—emmen., used in female complaints.

Upper Gangetic Plain, Madhya Bharat, Konkan, Deccan, S. Mahrata Country, N. Kanara and all plain districts of Madras State.

G. linearifolia Cass.; see **Glossocardia bosvallia** DC.

GLOSSOGYNE (*Compositae*)

G. pinnatifida DC.

Santh.–*Barangom-bir-barangom*; Gujarati–*Pardesibhangro.*

Preparation from the root—employed in snake-bite and scorpion-sting.

Punjab Plain, Upper Gangetic Plain, Kumaon, Chota Nagpur, W. Bengal, S. Mahrata Country, N. Circars and Deccan of the Madras State.

GLOSSONEMA (*Asclepiadaceae*)

G. varians Benth.

Fruit—cooling and digestible.

Sind and Baluchistan.

GLYCINE (*Leguminosae*)

G. labialis Linn. f.; see **Teramnus labialis** Spreng.

G. max Merr.

H.–*Bhat*; B.–*Garikulay*; P. & Kumaon–*Bhut.*

Decoct. of bark—astrin.

Lower slopes of the Himalayas up to 6,000 ft. from the Punjab eastwards, Bengal, Khasia, Manipur and Naga Hills.

G. soja Sieb. & Zucc.; see **G. max** Merr.

GLYCOSMIS (*Rutaceae*)

G. cochinchinensis Pierre ex Engler; see **G. pentaphylla** Correa

G. pentaphylla Correa syn. *G. cochinchinensis* Pierre ex Engler

S.–*Ashvashakota*; H.–*Ban-nimbu*; B.–*Ashshoura*; Bo.–*Kirmira*; Tel.–*Gong*; Tam.–*Konji.*

Roots—pounded and mixed with sugar given in low fever.

Wood—used in snake-bite.

Contains glycosmin identical with veratroylsalicin (*Proc. nat. Acad. Sc India*, 1935, 55; *Chem. Abstr.*, 193 1061).

Throughout India.

GLYCYRRHIZA (*Leguminosae*)

G. glabra Linn.

S.–*Yashti-madhu*; H.–*Jathimadh, Mu hatti*; B. & Bo.–*Jashti-madhu*; P.–*Mulcti*; Tam.–*Atimaduram*; Tel.–*At maduramu.*

Root—tonic, laxt., demulc., emol. used in genito-urinary diseases, coughs and sore throat and in scorpion-sting

Glycyrrhizin (*Arch. Pharm., Berl.*, 1907, 97; 1908, 545; 1911, 144; *Amer. J. Pharm.*, 1921, 481); glycyrrhizic acid (*Biochem. Z.*, 1933, 296; *Chem. Zbl.*, 1934, I, 1987); glycyrrhetinic acid (*J. pharm. Soc. Japan*, 1937, 166 *Chem. Abstr.*, 1939, 633).*

Baluchistan and sub-Himalayan tracts.

GMELINA (*Verbenaceae*)

G. arborea Linn.

S.–*Gumbhari*; H.–*Gamari, Khambhari*; B.–*Gamari*; Bo.–*Shewun*; P.–*Gumhar*; Tam.–*Kattanam*; Tel.–*Gummadi.*

Juice of leaves—demulc., used in gonor., cough, and to remove foetid discharges and worms from ulcers.

Plant—used in snake-bite and scorpion-sting.

Throughout India.

G. asiatica Linn.

S.–*Gopabhadra*; H. & P.–*Badhara*; Marathi–*Lahan-shivan*; M.–*Kumilam ram*; Tam.–*Nilakkumil*; Tel.–*Cherun*

Root—demulc., alter., astrin., arom. used for rheumatism, gonor. and catarrh of the bladder.

Glucd. (*Meded. PlTuin, Batavia*, 18 156).

N. Circars, E. Deccan and Carnatic planted in the Bombay State and Bengal.

GNAPHALIUM (*Compositae*)

G. luteo-album Linn.

P.–*Balraksha.*

Leaves—astrin., vulnerary.

Throughout India, ascending the Himalayas up to 10,000 ft.

GNETUM (*Gnetaceae*)

G. scandens Roxb.

Bo.–*Umbli*; Mal.–*Ula*; Uriya–*Lol*

Stems and roots—antiper.

Plant—used as fish poison.

E. tropical Himalayas from Sikkim eastwards to Assam and the Khasia Hills and through Chittagong, Chota Nagpur and Bihar to the Andamans. In W. India from Konkan southwards to the ghats of both sides of the Madras State at 500-5,000 ft.

GOMPHIA (*Ochnaceae*)

G. angustifolia Vahl; see **Ouratea angustifolia** Baill. ex Laness.

GORDONIA (*Ternstroemiaceae*)

G. obtusa Wall.

Tam.–*Miyilai*; Nilgiris–*Nagetta*.

Infusion of leaves—stim., stomch., appetizer.

Crystalline alk. like caffeine (Dymock, Warden & Hooper, I, 190).

Konkan, W. Ghats of the Madras State, chiefly of the eastern side, usually from 5,000 to 7,000 ft., lower in Travancore.

GOSSYPIUM (*Malvaceae*)

G. arboreum Linn.

H.–*Nurma*; P.–*Kapas*; Bo.–*Deokapas*; Mal.–*Chemparutti*; S.–*Karpasamu*; Tam.–*Sembarutti*; Tel.–*Patti*.

Root—used in fever.

Seeds—in gonor., gleet, chr. cystitis, catarrh, consumption.

(*J. Soc. chem. Ind., Lond.*, 1899, 161; 1909, 2131; 1916, 145, 1191; *J. Amer. chem. Soc.*, 1923, 1944; 1924, 405; 1925, 1731).*

Grown in gardens and about temples.

G. barbadense Linn.

S.–*Maghani*; M.–*Parutti*; Mal.–*Chemparutti*; Tam.–*Arattam*; Tel.–*Paidipatti*.

Seeds—in the form of an emulsion, given in dysen., supposed to be pectoral.

Oil from seeds—used to clear spots and freckles from the skin.

Cultivated in India.

G. herbaceum Linn.

S.–*Karpasi*; H., B. & Bo.–*Kapas*; Tam.–*Parutti*; Tel.–*Karpasamu*; Mal.–*Karppasi*.

Seeds—demulc., laxt., expect., galact., aphrodis., employed to procure abortion, considered nervine tonic, given in headache.

Root and bark—emmen., galact.

Juice of leaves—used in scorpion-sting and snake-bite.

Betaine, choline, salicyclic acid, etc. (*J. Amer. chem. Soc.*, 1917, 777; 1920, 1197; 1925, 1751; 1926, 2721).*

Cultivated in N.W. Frontier Province and Baluchistan.

G. hirsutum Linn.

In Guinea leaves and seeds considered emol. and roots emmen.

Leaves and flowers (deprived of petal) contain glucd. quercimeritrin, petals contain quercimeritrin and isoquercitin (*J. agric. Res.*, 1918); extraction of gossypol (*Proc. Indian Acad. Sci.*, 1942, 54; *Chem. Abstr.*, 1943, 884).

Cultivated.

GOUANIA (*Rhamnaceae*)

G. leptostachya DC.

Sikkim & Nep.–*Batwasi*; Lepcha–*Tungcheongmonrik*; Tel.–*Penkitige*; Uriya–*Khanta*.

Leaves—used as poultice for sores.

Alk. (*Kew Bull.*, 1909, 397).

N. Circars, sub-Himalayan tract from the Kangra District (Punjab) eastwards to Kumaon (1,000-3,000 ft.) and Assam, Khasia Hills (4,000 ft.) and Banda.

GRACILARIA (*Rhodophyceae*)

G. lichenoides (Linn.) Harv.

Ind. Baz.–*Chinaighas*.

Emol., demulc., alter.

Iodine (Dymock, Warden & Hooper, III, 640).

Coasts of the Indian Ocean and Chilka Lake.

GRANGEA (*Compositae*)

G. maderaspatana Poir.

H.–*Mustaru*; B.–*Namuti*; Marathi & Tam.–*Mashipatri*; Tel.–*Save*; Mal.–*Nelampala*; Gujarati–*Jhinkimundi*.

Leaves—stomch., antisp., deobstruent, prescribed in infusion and electuary in cases of obstructed menses and hysteria, and used in preparing antisep. and anodyne fomentations.

Juice of leaves—employed as instillation for earache.

Throughout India and Baluchistan.

GRAPTOPHYLLUM (*Acanthaceae*)

G. hortense Nees; see **G. pictum** (L.) Griff.

G. pictum (L.) Griff. syn. *G. hortense* Nees; *Justicia picta* Linn.

M.–*Ysjudemaram*; Konkan–*Kalaadulsa*.

Leaves—emol., resolv., used in scorpion-sting, inflamed breast.

Alk. (*Meded. PlTuin, Batavia*, 1897, 74; 1899, 55, 137).*

A native of Polynesia, common in Indian gardens.

GRATIOLA (*Scrophulariaceae*)

G. monniera Linn.; see **Bacopa monnieri** (Linn.) Pennell

GREWIA (*Tiliaceae*)

G. asiatica Linn.

S.–*Parusha*; H. & B.–*Phalsa*; P.–*Phalsa*; Tam.–*Palisa*; Tel.–*Peddajana*.

Fruit—astrin., cooling, stomch.

Infusion of bark—demulc.

Root-bark—in rheumatism.

Leaves—used as application to pustular eruptions.

Extensively cultivated throughout India; in the wild state unknown.

G. carpinifolia Juss.

In West Tropical Africa women use the plant in washing the hair to remove or prevent lice.

Western Peninsula.

G. hirsuta Vahl var. **helicterifolia**

Bo.–*Gowali*; H.–*Kukurbicha*; Marathi–*Govli*; Tel.–*Jibilike*.

Fruit and root—in diar. and dysen.

Root—pounded in water applied externally to hasten suppuration and as a dressing for wounds.

Sub-Himalayan tract up to 4,500 ft. from the Indus eastwards, Salt Range, Bihar and Orissa.

G. microcos Linn.

B.–*Asar*; Bo.–*Ansale*; Mal.–*Kottakka*; Tam.–*Kadambu*.

Plant—used in indign., typhoid fever, dysen. and syphilitic ulceration of the mouth and in smallpox, eczema and itches.

E. Bengal, Assam, Western Peninsula and Mysore.

G. paniculata Roxb.

Decoct. of roots—used as cure for cough in Indo-China.

Malay Peninsula.

G. polygama Mast.; see **Grewia hirsuta** Vahl var. **helicterifolia**

G. populifolia Vahl

P.–*Ganger*; Tel.–*Kaladi*.

Mucilage of bark—used by women of West Tropical Africa to clean the hair of vermin.

Punjab, Sind, Rajputana and Western India, down to the Nilgiri Hills.

G. scabrophylla Roxb.; see **G. sclerophylla** Roxb.

G. sclerophylla Roxb.

B.–*Phalsa*; H.–*Pharsia*; Tam.–*Kattukkadali*; Tel.–*Bankajana*; Marathi–*Khatkhati*.

Root — prescribed in cough and irritable conditions of the intestines and bladder.

Decoct.—used as an emol. enema.

Throughout the sub-Himalayan tract and outer hills of Kumaon, up to 3,500 ft., Sikkim, Assam and Chittagong.

G. subinaequalis DC.; see **G. asiatica** Linn.

G. tenax Fiori

Arab.–*Chodar*; Baluchistan–*Gwangi*; Rajputana–*Gango*; Tam.–*Achu*; Tel.–*Gundukadira, Kadadari*.

Decoct. of wood — given to cure coughs and pains in the side.

Punjab, Desert of W. Rajputana, Sind, Baluchistan, Cutch, S. Mahrata Country, Deccan and Carnatic of Madras State.

G. tiliaefolia Vahl

S.–*Dharmana*; H. & B.–*Dhamani*; Bo.–*Damana*; Tam.–*Tarra*; Tel.–*Charachi, Jana*; Mal.–*Satachi*.

Bark—used in dysen., employed externally to remove the irritation from cow-itch.

Wood—in powder form emetic, antid. to opium poisoning.

Sub-Himalayan region from the Jumna to Nepal up to 4,000 ft., Madhya Bharat, all districts of Madras State, Bihar and Orissa.

G. umbellata Roxb.

Leaves—used to cure cuts and wounds.

Western Peninsula, Konkan and Coromandel; Malay Peninsula.

G. villosa Willd.

Ajmere–*Dhohan*; P.–*Jalidar*; Tam.–*Kullai*; Tel.–*Banta*; Marathi–*Kharmati*.

Root—used in diar.

Juice of fresh bark—used with sugar and water for gonor. and urinary complaints attended with irritability of the bladder.

Trans-Indus, Punjab, Rajputana, Sind, Cutch, Kathiawar, Deccan and Carnatic of the Madras State from the Kistna southwards.

GRISLEA (*Lythraceae*)

G. tomentosa Roxb.; see **Woodfordia fruticosa** Kurz

GUAZUMA (*Sterculiaceae*)

G. tomentosa Kunth

B.–*Nipaltunth*; M.–*Tenmaram*; Tam.–*Tenbachai*; Tel.–*Rudraksha*.

Bark—sudorific, tonic, demulc., useful in skin diseases and elephantiasis.

Frequently cultivated. A native of Tropical America.

GUIZOTIA (*Compositae*)

G. abyssynica Cass.

B.–*Ramtil*; Bo.–*Ramatila*; H.–*Kalatil*, *Surguja*; Tel.–*Valesulu*.

Oil from seeds—in rheumatism. (*J. Soc. chem. Ind., Lond.*, 1898, 491; *Proc. Indian Sci. Congr.*, 1931).

A native of tropical Africa. Cultivated in various parts of India.

GYMNEMA (*Asclepiadaceae*)

G. latifolium Wall.

Leaves contain HCN-glucd., amygdalin (*Ber. dtsch. chem. Ges.*, 1890, 3548).

Sylhet.

G. sylvestre R. Br.

S.–*Meshashringi*; H.–*Merasingi*; B.–*Meshasingi*; Bo.–*Kavali*; Tam.–*Shirukurinja*; Tel.–*Podapatri*.

Leaves—in diabetes, chewed to reduce glycosuria.

Root—emetic, expect.

Gymnemic acid (*Pharm. Ztg, Berl.*, 1891, 401; *Proc. chem. Soc., Lond.*, 1904, 87, 604; *J. chem. Soc.*, 1904, 624; *Indian J. med. Res.*, 1928); leaves contain anthraquinone compound (*Indian J. med. Res.*, 1931, 1).

Banda, Konkan, S. Mahrata Country, W. Ghats, N. Kanara, N. Circars, Carnatic and Deccan.

GYMNOPETALUM (*Cucurbitaceae*)

G. cochinchinense Kurz

Root—pounded and mixed with hot water rubbed on the body in body-ache and atrophy of limbs.

Plant—used in the composition of a special drug given to women in labour.

Sikkim up to 2,000 ft., Assam, Cachar, Bengal and Chota Nagpur.

GYMNOSPORIA (*Celastraceae*)

G. montana (Roth) Benth.; see **G. spinosa** (Forsk.) Fiori

G. royleana M. Laws.

H.–*Jaliddhar*; P.–*Kandiari*; Ranikhet–*Gwaldari*; Tel.–*Danti*.

Smoke from the seeds—said to be good for toothache.

W. Himalayas, Kumaon and Garhwal up to 4,500 ft.

G. spinosa (Forsk.) Fiori

B.–*Vaichigachha*; S.–*Vikankata*; H.–*Baikal*; P.–*Kharai*; Tam.–*Kattanji*; Tel.–*Dantausi*.

Bark—ground to a paste applied with mustard oil to destroy pediculi.

Punjab, Sind, W. Rajputana, Gujarat, Khandesh, Western Peninsula, Deccan, Madhya Pradesh and Bihar.

GYMNOSTACHYUM (*Acanthaceae*)

G. febrifugum Benth.

Kan.–*Nelamuchchala*.

Root—febge.

Madras State: W. Coast and W. Ghats, S. Kanara, Malabar; Travancore.

GYNANDROPSIS (*Capparidaceae*)

G. gynandra (Linn.) Briquet syn. *G. pentaphylla* DC.; *Cleome pentaphylla* Linn.

S.–*Surjavarta*; H.–*Karalia*; B.–*Hurhuria*; Bo.–*Tilavana*; Mal.–*Taivela*; Tam.–*Kadugu*; Tel.–*Vaminta*.

Decoct. of root—used in fever.

Leaves—rubft., vesic., in rheumatism.

Juice of leaves—remedy for otalgia.

Seeds—anthelm., rubft.

Plant—in scorpion-sting and snake-bite.

Essen. oil (Dragendorff-Heilpflanzen, 260); seeds contain cleomin (*Proc. nat. Inst. Sci. India*, 1937, 45; *Chem. Abstr.*, 1938, 2137).

A common weed abundant throughout the warmer parts of India.

G. pentaphylla DC.; see **G. gynandra** (Linn.) Briquet

GYNOCARDIA (*Flacourtiaceae*)

G. odorata R. Br.

H., B. & Bo.–*Chaulmogra*; S.–*Kushthapa*.

Oil from seeds—in leprosy and other skin diseases.

Fruit—fish poison.

Glucd. gynocardin; dry seeds with about 9% water produce up to 0·8% HCN and fresh seeds over 1% HCN (*Pharm. Weekbl.*, 1905, 102; *Proc. chem. Soc., Lond.*, 1904, 836, 838, 851; 1905, 88, 176; *J. chem. Soc.*, 1905, 349, 884, 896; 1910, 1285).

Sikkim, Khasia Hills and Chittagong.

GYNURA (*Compositae*)

G. pseudo-china DC.

Plant—emol., resolv., used as poultice in erysipelas and for tumours on breast.

Juice of leaves—as gargle for inflam. of throat.

S. India and Sikkim Himalayas at 2,000-4,000 ft.

HABENARIA (*Orchidaceae*)

H. commelinifolia Wall. ex Lindl.

Plant—furnishes salep.

Outer ranges of W. Himalayas, from the Punjab to Kumaon, up to 5,000 ft., extending eastwards to Parasnath, Chota Nagpur, Bihar, Madhya Bharat, Konkan, W. Ghats, Deccan, N. Kanara and Bababudan Hills.

HACKELOCHLOA (*Gramineae*)

H. granularis O. Ktze. syn. *Manisuris granularis* Sw.

S.–*Palanggini*; H.–*Trinpali*; Gujarati–*Kasiunghas*; Rajputana–*Dhaturoghas*.

Plant—in conjunction with little sweet oil, used internally in enlarged spleen and liver.

Throughout the hotter parts of India.

HAEMATOXYLON (*Leguminosae*)

H. campechianum Linn.

B.–*Bokkan*; M.–*Partanga*; Tel.–*Gabbi*.

Decoct. and extract of heart-wood — astrin., tonic, used in chr. diar., and atonic dyspep.; decoct. a valuable injection in leucor.

Tannin (U.S.D., 1474; *Proc. chem. Soc., Lond.*, 1900, 45; *J. chem. Soc.*, 1900, 423).

Introduced into India. A native of Tropical America.

HAGENIA (*Rosaceae*)

H. abyssynica Gmel. syn. *Brayera anthelmintica* Kunth

H.–*Cusso*.

Dried flowers and tops—anthelm.

α- and β-kosin and kosotoxin (*Arch. Pharm., Berl.*, 1899, 481; 1901, 672; 1908, 523; *J. Pharm., Lond.*, 1888, 507; *C.R. Acad. sci., Paris*, 1906, 451); air-dried female flowers—0·4% protokosin (*J. chem. Soc.*, 1937, 562; *Chem. Abstr.*, 1937, 4454; U.S.D., 1371).

Native of Abyssinia.

HALOXYLON (*Chenopodiaceae*)

H. multiflorum Bunge

P.–*Lana*.

Mentioned as a drug yielding plant.

N.W. Punjab Plains, and the Salt Range, ascending to 2,000 ft.

H. recurvum Bunge ex Boiss.

Las Bela–*Khar*.

Plant—poisonous.

Punjab, Sind, Rajputana Desert and Coimbatore.

H. salicornicum Bunge ex Boiss.

Lorali–*Zahrbuti*.

Plant—poisonous.

Punjab, Baluchistan and Sind.

HAMILTONIA (*Rubiaceae*)

H. suaveolens Roxb.

Bo.–*Gidasawa*; P.–*Fisauni*; M.P.–*Mahabal*; Nep.–*Bainchampa*.

Infusion of roots—given in courbature.

Tropical and subtropical Himalayas, Madhya Bharat and Western Peninsula.

HAPLANTHUS (*Acanthaceae*)

H. tentaculatus Nees

H.–*Kastula*; Marathi–*Jhankara*.

Plant—antipyr.

Upper Gangetic Plain, Gujarat, Konkan and Deccan.

H. verticillatus Nees

H.–*Kastula*; Marathi–*Jhankara*.

Plant—antipyr.

Bundelkhand, W. Rajputana, Konkan, W. Ghats, S. Mahrata Country, Bellary, Deccan and Assam.

HARDWICKIA (*Leguminosae*)

H. pinnata Roxb.

Mal.–*Kodapalla*; Kan.–*Enne*; Marathi–*Anjana*; Tam.–*Kodapalai*.

Balsam—used for gonor.

Yields balsam similar to copaiba balsam and used as such; essen. oil (*Ber. Schimmel u. Co., Lpz.*, 1905, April 86; 1907, April, 116; *Arch. Pharm., Berl.*, 1908, 71); the oil as reported by the Imperial Institute, London, cannot be a substitute for copaiba oil (Kirtikar & Basu, II, 882); oleoresin (*J. Indian Inst. Sci.*, vol. II, 1918-1920, 29).

Evergreen forests of the W. Ghats from S. Kanara to Travancore.

HARPULLIA (*Sapindaceae*)

H. cupanioides Roxb.

Chittagong–*Harpulli*.

Plant—used as fish poison.

Saponin (Wehmer, II, 733).

Hill tracts near Chittagong.

HEDERA (*Araliaceae*)

H. helix Linn.

Bihar—*Lablab*; P.–*Banda*; Kash.–*Karmora*; Kumaon–*Banda*; Tam.–*Maruvalai*.

Berries—purg., useful in febrile disorders.

Dry leaves—used to stimulate sores.

Leaves and berries—stim., diaphor., cath.

0·225 mg. arsenic oxide in 1 kg. leaves (*Pharm. Weekbl.*, 1921, 1482; *Chem. Zbl.*, 1922, II, 113); leaves—about 10% saponin, α-hedrin (*J. pharm. Soc., Japan*, 1934, 8; *Chem. Zbl.*, 1934, I, 3221; *Seifensiederztg*, 1941, 35; *Chem. Abstr.*, 1941, 3032); glucd. helixin extracted from the berries (Kirtikar & Basu, II, 1235).

Throughout the Himalayas, 6,000-10,000 ft., Khasia Hills, 4,000-6,000 ft. grows in some places.

HEDYCHIUM (*Zingiberaceae*)

H. spicatum Ham. ex Smith

S.–*Karchura*, *Karpur*; H.–*Sitruti*; Marathi–*Kapurakachari*; B.–*Gandhashati*; Bo.–*Sutti*; Tam.-*Simaikkichilikkilhangu*.

Rootstock—stomch., carmin., tonic, stim., emmen., expect., good in liver complaints, vomiting, diar., inflam. and pains; used in snake-bite.

Essen. oil, methyl paracumarin acetate, cinnamic ethyl acetate (*Dtsch. ApothZtg*, 1884, 560; Wehmer, I, 179);

rhizomes yield 4% essen. oil containing ethyl-*p*-methoxy cinnamate 67·8, ethyl cinnamate 10·2, *d*-sabinene 4·0, 1:4-cineole 6·0, sesquiterpenes (probably cadinene) 5·5, sesquiterpene alcohol 4·7% (*Indian Soap J.*, 1940, 248; *Chem. Abstr.*, 1940, 6015).*

Subtropical Himalayas, Nepal, Kumaon, 5,000-7,000 ft.

HEDYOTIS (*Rubiaceae*)

H. auricularia Linn.; see **Oldenlandia auricularia** K. Schum.

H. umbellata Lam.; see **Oldenlandia umbellata** Linn.

HEDYSARUM (*Leguminosae*)

H. alhagi Linn.; see **Alhagi camelorum** Fisch.

H. gangeticum Linn.; see **Desmodium gangeticum** DC.

H. purpureum Roxb.; see **Desmodium polycarpum** DC.

H. triflorum Linn.; see **Desmodium triflorum** DC.

H. tuberosum Roxb.; see **Pueraria tuberosa** DC.

HELIANTHUS (*Compositae*)

H. annuus Linn.

S.–*Surya-mukhi*; H.–*Surjamukhi*; B.–*Suraja-mukhi*; Bo.–*Surajmaki*; Tel.–*Adityabhaktichettu*; M.–*Suriyakandi*.

Seeds—diur., expect., used in bronchial, laryngeal, pulmonary affections, coughs and colds, in scorpion-sting. (*J. Amer. chem. Soc.*, 1897, 487; 1922, 2952; *Biochem. Z.*, 1919, 1; *J. Soc. chem. Ind., Lond.*, 1927, 433 T.); chlorogenic acid (*Chem. Zbl.*, 1933, II, 1617); leaves—carotin, lutein (*Ber. dtsch. chem. Ges.*, 1934, 170; *Chem. Zbl.*, 1934, I, 2436).

Cultivated in India. A native of America.

HELICTERES (*Sterculiaceae*)

H. isora Linn.

S.–*Mriga-shinga*; H.–*Marorphali*; B.–*Atmora*; Bo.–*Kevana*; Tam.–*Valumberi*; Tel.–*Valambiri*; P.–*Marorphali*.

Fruit—demulc., astrin., useful in the griping of bowels and flatulence of children.

Bark—in dysen. and diar.

Juice of root—in diabetes empyema, stomach affections and snake-bite.

Root and bark—expect., demulc., astrin. to the bowels, antigalactagogue; lessen griping; a cure for scabies when applied topically.

Dry forests throughout Central and Western India, from Bihar as far west as Jammu and Western Peninsula.

HELIOTROPIUM (*Boraginaceae*)

H. brevifolium Wall.

H.–*Chitiphul*, *Safed bhangra*; P.–*Tindu*.

Plant—laxt., diur.

Juice—applied to sore eyes, gum boils, and sores generally, in sting of nettles and insects.

Throughout India.

H. eichwaldi Steud. ex DC.

H. & P.–*Nilkattei*; Kash.–*Chirghas*.

Leaves—for cleaning and healing ulcers and in scorpion-sting, rolled up and put into the ears as a cure for earache.

Plant—emetic, in snake-bite.

Toxic alk. (*Amer. J. Pharm.*, Feb., 1891).

Punjab, Rajputana Desert, Sind and Baluchistan, ascending in Kashmir up to 5,000 ft.

H. indicum Linn.

S.–*Hastisunda*; H. & B.–*Hatisura*; Bo.–*Burundi*; Tam.–*Telkodukki*.

Leaves—applied to boils, ulcers, wounds and in stings of insects and reptiles.

Plant—diur.

Alk. (Dymock, Warden & Hooper, II, 526; *Arch. Pharm., Berl.*, 1900, 505).

Throughout India.

H. ophioglossum Stocks

Uses similar to other species of *Heliotropium*.

Sind and Baluchistan.

H. strigosum Willd.

H.–*Chitiphul*, *Safed bhangra*; P.–*Tindu*.

Plant—laxt., diur., used in snake-bite.

Juice—application to sore eyes, gum boils, and sores generally, to promote suppuration.

W. Himalayas and throughout India and extending to Baluchistan.

H. tuberculosum Boiss.

P.–*Jatimisak*, *Pipat-buti*.

Plant—used in bites of scorpions and venomous reptiles and as cure for camels' bad eyes.

Sind, Rajputana Desert and Baluchistan.

H. undulatum Vahl; see **H. tuberculosum** Boiss.

HELLEBORUS (*Ranunculaceae*)

H. niger Linn.

S.–*Katurchini*; H.–*Khorasani kutki*; B.–*Kalukutki*; M.–*Kadagaruganie*.

Rhizome—cath., emmen., anthelm., used as local anaesthetic, cardiac tonic like digitalis, in apoplexy and skin diseases.

Helleborin and helleborein (*Arch. Pharm., Berl.*, 1897, 414; 1910, 463; 1927, 338); rhizome contains another glucd. hellebrin; physiol. activity, containing 2·5-3·2 million frog doses per g., as active as convallatoxin; lethal dose for cats 0·1 mg./kg. (intravenous) and 10 mg./kg. (oral), 20-30 times more active than helleborein, superior to strophanthin (*Helv. chim. acta*, 1943, 1353; *Chem. Abstr.*, 1944, 2960).

A native of central and S. Europe.

H. viridis Linn.

S.–*Krishna bhedi*; H.–*Kalikatuki*; Bo.–*Kulki*; M.–*Katu-karohini.*

Glucd. helleborin (*Pharm. J.*, 1853, 74; *Arch. Pharm., Berl.*, 1910, 463; 1927, 338); 3 alks.—sprintilline, celiamine, and sprintillamine; these resemble aconitine in their effects on the system (*Arch. Pharm., Berl.*, 1928, 545; *Arch. exp. Path. Pharmak.*, 1931, 183; U.S.D., 1476).

A native of Europe.

HELMINTHOSTACHYS (*Ophioglossaceae*)

H. zeylanica Linn.

Plant—aper., intoxicant, anodyne, used in sciatica (Prain).

S. India in the western forests in swampy places up to 3,000 ft., N. India, Bengal plains to Assam and Cachar.

HEMIDESMUS (*Asclepiadaceae*)

H. indicus R. Br.

S.–*Ananta*; H.–*Magrabu*; B. & Marathi–*Anantamul*; Bo.–*Uparsara*; Tam. & Mal.–*Nannari*; Tel.–*Gadisugandhi.*

Roots—used as subst. for sarsaparilla, demulc., alter., diaphor., diur., tonic, in loss of appetite, disinclination for food, fever, skin diseases, as blood-purifier, in leucor., syphilis, rheumatism, and in scorpion-sting and snake-bite.

Air-dried roots contain 0·225% essen. oil containing 0·18% 2-hydroxy-4-methoxy benzaldehyde, sterols and a glucd. (*Arch. Pharm., Berl.*, 1938, 333; *Chem. Abstr.*, 1938, 8689); saponin, resin acid and tannins (*Proc. Indian Acad. Sci.*, 1941, 399; *Chem. Abstr.*, 1942, 1735).*

Upper Gangetic Plain, eastwards to Bengal and the Sundarbans, and from the Madhya Pradesh to S. India.

HEMIDICTYUM (*Polypodiaceae*)

H. ceterach Linn. = **Asplenium ceterach** Linn. = **Ceterach officinarum** Willd.

Plant—diur., astrin., used in infirmities of spleen.

Kashmir, Punjab and Garhwal, ascending up to 9,000 ft.

HERACLEUM (*Umbelliferae*)

H. wallichii DC.

Root—tonic, aphrodis.

Sikkim and Nepal.

HERNANDIA (*Hernandiaceae*)

H. peltata Meissn.

Mysore–*Uparanthi.*

Bark and leaves—cath.

Juice of plant—powerful depilatory, removing the hair without pain.

Essen. oil (*Ber. Schimmel u. Co., Lpz.*, 1910, Oct., 137; 1915, April, 54; *Ber. dtsch. chem. Ges.*, 1911, 815; *J. Soc. chem. Ind., Lond.*, 1916, 1089).*

S. India and the Andaman Islands.

HERPESTIS (*Scrophulariaceae*)

H. monniera (Linn.) H. B. & K.; see **Bacopa monnieri** (Linn.) Pennell

HETEROPHRAGMA (*Bignoniaceae*)

H. quadriloculare (Roxb.) Schum. syn. *H. roxburghii* DC.

Bo. & Marathi–*Warras*; Kan.–*Bichadi*; Tel.–*Barukoligottu.*

Root—prescribed as drink in viper-bite.

Tar from wood—used in skin diseases.

Madhya Pradesh, Khandesh, Konkan, Deccan, S. Mahrata Country, W. Ghats of Bombay and Madras States.

H. roxburghii DC.; see **H. quadriloculare** (Roxb.) Schum.

HETEROPOGON (*Gramineae*)

H. contortus Roem. & Schult.

H.–*Shurval*; Marathi–*Kantegawta.*

Root—stim., diur.

Throughout India, ascending the Himalayas up to 5,000 ft.

HEYNEA (*Meliaceae*)

H. sumatrana Miq.

Toxic bitter substance (*Meded. PlTuin, Batavia*, 1899, 80, 121).

W. Sumatra.

H. trijuga Roxb.

B.–*Kapiakushi*; Bo.–*Limbara*; Almora–*Banritha*; Mal.–*Korahadi*; Marathi–*Gundira*; Tam.–*Karai, Sendarai.*

Bark and leaves—bitter, tonic.

Fruits—mixed with other drugs used by thieves to stupefy people in Malaya.

Sub-Himalayan tract from Kumaon eastwards, Sikkim up to 4,000 ft., Khasia Hills, Manipur, E. Ghats in the forests of Godavari and Vizagapatam up to 4,500 ft., W. Ghats from Poona southwards through the Nilgiris and Anamalais to Travancore, up to 6,000 ft.

HIBISCUS (*Malvaceae*)

H. abelmoschus Linn.

S.-*Latakasturika*; H. & Bo.-*Mushkdana*; B.-*Mushakdana*; Tel.-*Kasturibenda*; Tam.-*Kattukkasturi*.

Seeds—stim., antisp., stomch., cooling, tonic, carmin., aphrodis., rubbed to a paste with milk used to cure itch, in snake-bite.

Essen. oil (*Ber. Schimmel u. Co., Lpz.*, 1887, Oct., 35; 1888, April, 29; 1893, Oct., 45; 1912, April, 89; 1914, April, 68; *Ber. dtsch. chem. Ges.*, 1927, 907).

Cultivated in the hotter parts of India.

H. cannabinus Linn.

S.-*Nali*; H.-*Patsan*; B.-*Mestapat*; Bo.-*Ambari*; Tam.-*Pulichai*; Tel.-*Gongura*.

Juice of flowers—with sugar and black pepper in biliousness with acidity.

Seeds—aphrodis., fattening, as external application to pains and bruises.

Leaves—purg.

Seeds contain fatty oil like arachis oil (*Pharm. Weekbl.*, 1922, 1926) radium, thorium, rubidium (*Biochem. Z.*, 1931, 58; *Chem. Zbl.*, 1931, 1, 3575); flower petals contain glucd. cannabiscitrin and flavonol cannabiscetin (*Curr. Sci.*, 1938, 504; *Chem. Abstr.*, 1938, 5846).

Generally cultivated. Apparently a native of Africa.

H. esculentus Linn.

S.-*Gandhamula*; H.-*Bhindi*; B.-*Dheras*; Bo.-*Bhenda*; Tam.-*Vendi*; Tel.-*Venda*; P.-*Bhindi*.

Immature capsules—used in the form of a decoct. as emol., demulc., diur., in catarrhal affections, ardor urinae, dysuria and gonor. .

Mucilage from fruits and seeds—emol., demulc., useful in gonor. (*Chemikerztg*, 1900, 871; *J. Amer. chem. Soc.*, 1920, 166; *Arch. Pharm., Berl.*, 1871, 140).*

Cultivated throughout India.

H. furcatus Willd.

Tel.-*Kondagongura*; Kan.-*Huligowri*; Mal.-*Pachapuli*.

Infusion of roots in water—cooling, drink for hot weather.

Hotter parts of India.

H. lampas Cav.; see **Thespesia lampas** Dalz. & Gibs.

H. manihot Linn.

Bark—considered emmen. in Indo-China, used in the form of a mucil.

Bengal, Mt. Abu, Gujarat, Konkan, W. Ghats and W. Coast from S. Kanara Travancore.

H. micranthus Linn. f.

Gujarati-*Chanak bhindo*; Tam.-*Sittamutti*; Tel.-*Tuturubenda*.

Plant—febge.

Hotter parts of India from N.W. India eastwards and southwards to Ceylon.

H. mutabilis Linn.

B.-*Thulpadma*; H. & P.-*Guliajaib*; S.-*Padmacharini*; Mal.-*Chinapparatti*; Tam.-*Sembarattai*.

Flowers—used in Malaya and China for pectoral and pulmonary complaints, and as stim.

Leaves—applied to swellings.

Plant—emol.

Cultivated in India. Indigenous to China.

H. populneus Linn.; see **Thespesia populnea** Soland. ex Correa

H. rosa-sinensis Linn.

S. & B.-*Joba*; H.-*Jasum*; Bo.-*Jasavanda*; Tam.-*Sapattuppu*; Tel.-*Dasanamu*.

Root—in cough, subst. for Althaea.

Leaves—emol., aper.

Flowers—emol.

Infusion of petals—given as a demulc. and refrig. drink in fevers.

Cultivated in gardens throughout India.

H. sabdariffa Linn.

H. & Bo.-*Lalambari*; B.-*Mesta*; Tam.-*Simaikkasuru*; Tel.-*Ettagonguru*.

Leaves—emol., much used in Guinea as diur., sedative and refrig.

Fruit—antiscor.

Leaves, seeds and ripe calyces—diur., antiscor.

Succulent calyx—boiled in water used as a drink in bilious conditions.

Organic acids from flowers (*J. chem. Soc.*, 1909, 1855); gossypetin, anthocyanin and a glucd. hibiscin (*Bull. agric. chem. Soc., Japan*, 1932, 142; *Chem. Zbl.*, 1933, I, 3090; *Sci. Pap. Inst. phys. chem. Res., Tokyo*, 1932, 134; *Chem. Zbl.*, 1933, I, 71); infusion of drug contains citric, tartaric and malic acids; possesses diur. and choleretic effect, decreases the viscosity of blood, reduces blood pressure and stimulates intestinal peristalsis (*Pr. med.*, 1938, 1060; *Chem. Abstr.*, 1939, 3891); dried fruits contain Ca oxalate, gossepetin, anthocyanin (having antisep. power) and vitamin C (*J. Pharm. Chim., Paris*, 1940, 292; *Chem. Abstr.*, 1941, 8209); dry petals contain flavonol glucd. hibiscitrin (*Proc. Indian Acad. Sci.*, vol. 15A, 1942, 148; *Chem. Abstr.*, 1942, 7238).

Generally cultivated in the hotter parts of India.

H. surattensis Linn.
Bo.–*Ranbhandey*; Tam.–*Kashlikirai*; Tel.–*Mulugogu*.

Mucilaginous flowers—used as emol. and pectoral in La Reunion.

Stem and leaf—in a lotion used by the Zulus for the treatment of penile irritation of any sort, including venereal sores and urethritis.

Hotter parts of India and Bengal.

H. tiliaceus Linn.
B.–*Chelwa*; Bo.–*Bellipata*; S.–*Bala*; Tam.–*Nirpparutti*; Tel.–*Ettagogu*.

Root—febge., employed in the preparation of embrocations.

Coasts of both Peninsulas; plentiful in the Sundarbans.

H. trionum Linn.

Infusion of flowers—in China and Malaya taken for itching and painful skin diseases and as diur.

Dried leaves—considered stomch.

W. Himalayas, Kashmir, Simla, Bengal, Konkan and Sind.

H. vitifolius Linn.
B.–*Bankapas*; S.–*Bharadvaji*; Tel.–*Karupatti*.

Roots provide a preparation used by Gold Coast women to kill head-lice.

Flowers yield 0·4% glucd. gossypin (*Proc. Indian Acad. Sci.*, vol. 24A, 1946, 352; *Chem. Abstr.*, 1947, 2734, 2735).

Common in jungles and brushwoods of the hotter parts of India, from the N.W. Frontier Province to Ceylon.

HIERACIUM (*Compositae*)

H. virosum Pall.

Plant—considered aper. and vulnerary in Spain, said to be poisonous.

Kashmir, between 7,000-8,000 ft.

HIPPOCRATEA (*Hippocrateaceae*)

H. indica Willd.; see **Pristimera indica** (Willd.) a.c. Smith

HIPPOMANE (*Euphorbiaceae*)

H. mancinella Linn.
English—*Manchineal tree*.

Milky juice—given to children in Guiana for worms.

Introduced into Indian gardens. A native of Tropical America.

HIPPOPHAE (*Elaeagnaceae*)

H. rhamnoides Linn.
U.P.-*Chuma*, *Dhurchuk*; P.–*Milech*, *Tarru*; Pangi–*Suak*.

Plant—given for lung complaints.

Decoct of berries—used for cutaneous eruptions in France.

(*Ber. dtsch. chem. Ges.*, 1899, 3351); two new alks. (*J. gen. Chem., Moscow*, 1946, 775; *Chem. Abstr.*, 1947, 1390).

N.W. Himalayas, 7,000-15,000 ft.

H. salicifolia D. Don
Almora–*Chu*; Garhwal–*Ames*, *Chuk*; P.–*Chuma*, *Kalabis*.

Fruit—given in lung complaints.

Temperate Himalayas, from Kunawar to Kumaon, 7,000-11,000 ft.

HIPTAGE (*Malpighiaceae*)

H. benghalensis Kurz syn. *H. madablota* Gaertn.
S.–*Madhavi*; H. & B.–*Madhavilata*; P.–*Benkar*; Marathi–*Haladwail*; Tel.–*Vadlayerala*; Tam.–*Adigam*, *Vasandi*.

Leaves—useful in chr. rheumatism, skin diseases and asthma.

Juice of leaves—insecticide and application for scabies.

Roots contain glucd. hiptagin (*Bull. Jard. bot. Buitenz.*, 1920, 187).*

Bombay State: Konkan, W. Ghats, N. Kanara; Madras State: N. Circars and Carnatic; Mt. Abu (not in Sind); Siwalik, Kumaon, E. Bengal, Assam, Nepal and the Andamans.

H. madablota Gaertn.; see **H. benghalensis** Kurz

HITCHENIA (*Zingiberaceae*)

H. caulina Baker
H. & B.–*Tikhur*; Bo.–*Tavakhir*.

Indian arrowroot.

Konkan and abundant on the tableland of Mahabaleshwar.

HOLARRHENA (*Apocynaceae*)

H. antidysenterica Wall.
S.–*Kutaja*, *Pandura*; H.–*Kurchi*; B.–*Kurchi*; Bo.–*Kura*, *Kalakura*, *Pandhrakura*; P.–*Kawar*, *Kura*; Tam.–*Kudasappalai*; Tel.–*Kodisepala*, *Palakodsa*.

Bark—in dysen., dried and ground rubbed over the body in dropsy.

Seeds—astrin., febge., in fever, dysen. diar., and intestinal worms.

Alks. conessine, kurchine, kurchicine (*J. chem. Soc.*, 1926, 2123; 1932, 631; 1935, 734, 1129; *J. Indian chem. Soc.*, 1928, 477; 1932, 553; 1933, 673; 1934, 283; *Arch. Pharm., Berl.*, 1932, 100; 1939, 237; *Ber. dtsch. chem. Ges.*, 1933, 786; *Indian J. med. Res.*, 1933, 277); alks. isolated from the bark are: conessine 0·4%, holarrhimine, conarrhimine, a base (corresponding to kurchicine), conamine, conessimine, isoconessimine, conimine 0·04% (*Proc. Indian Acad. Sci.*, vol. 3A, 1936, 249; *Chem. Abstr.*, 1936, 4866); lethal dose of kurchicine

(mg./kg.) for frog 51, guinea-pig 88 and mouse 160, toxic dose paralyses central nervous system of frogs, small doses raise blood pressure followed by a fall (*J. Pharmacol.*, 1936, 361; *Chem. Abstr.*, 1937, 1104); lethal dose of conessine (mg./kg.) for frog 100, guinea-pig 115 and mouse 126; large doses depress blood pressure; isoconessine is approximately one half as toxic (*J. Pharmacol.*, 1936, 373; *Chem. Abstr.*, 1937, 1104); isoconessine is more potent than conessine (*Proc. Indian Acad. Sci.*, vol. 4A, 1936, 283; *Chem. Abstr.*, 1937, 1027); alks. conessine, conessidine, conkurchine, kurchicine and holarrhenine present in the bark; extract kills paramoecia, colpidia and dephnia (*Arch. exp. Path. Pharmak.*, 1944, 41; *Chem. Abstr.*, 1944, 5960); seeds yield 1·4% crystalline glucoalkaloid (*Curr. Sci.*, 1946, 106; *Chem. Abstr.*, 1946, 5064); alk. conkurchine (*Chem. Abstr.*, 1947, 136); alk. conkurchine contains a free amino group (*Chem. Ber.*, 1947, 316; *Chem. Abstr.*, 1948, 3761); total alks. estimated (*Indian J. Pharm.*, 1949, 74; *Chem. Abstr.*, 1950, 796); seasonal variation of alks. in different parts of the plant and the alk. content in the bark at different ages (*Indian J. med. Res.*, 1950, 467; *Chem. Abstr.*, 1951, 9222); bark contains a large number of alks., the chief amongst them are conessine, nor-conessine, conesimine, iso-conessimine, kurchine, conimine, conamine, conarrhimine, conessidine, conkurchine, holarrhenine, holarrhimine, holarrhine, kurchicine and lettocine; maximum total alk. of kurchi was found to be 4·5 per cent (I.P.C., 135).

More or less throughout India, ascending to 4,000 ft. in the Himalayas.

H. mitis R. Br.

Sinhalese–*Kiriwolla*.

Wood and bark—remedy in fevers and dysen.

Bark—antiper.

Endemic in Ceylon.

HOLIGARNA (*Anacardiaceae*)

H. arnottiana Hook. f.

Bo.–*Bibu*; Kan.–*Holigar*; Mal.–*Chera*; Marathi–*Holgeri*; Tam.–*Karunjarai*.

Fruit and bark employed medicinally.

Juice—vesic.

Evergreen forests of the Western Coasts and the W. Ghats, from the Konkan southwards, Coorg, the Nilgiris and low country of Travancore.

H. grahamii (Wight) Hook. f.

Marathi–*Bipta*.

Juice—vesic.

Western Peninsula and Konkan.

H. longifolia Buch.-Ham. ex Roxb.

B.–*Barola*; Bo.–*Hulugiri*; Kan.–*Kutugeri*; Marathi–*Sudrabibo*.

Bark and fruit employed medicinally.

Juice from the trunk and rind of fruit—poisonous, vesic.

East Bengal, especially Chittagong.

HOLOPTELEA (*Ulmaceae*)

H. integrifolia Planch.

H. & P.–*Papri*; Marathi–*Vavala*; S.–*Chirabilva*; Tam.–*Aya*; Tel.–*Nemali*.

Juice of boiled bark—applied to rheum. swellings.

Sub-Himalayas, Ajmere, Bundelkhand, Bihar, Assam and W. Peninsula.

HOLOSTEMMA (*Asclepiadaceae*)

H. annulare K. Schum.

Bo.–*Dudurli*; H.–*Chhirvel*; S.–*Arkapushpi*; Tel.–*Palagurugu*.

Roots—alter., used as a remedy for scalding in gonor.; beaten into a paste applied to the eyes in ophthalmia; rubbed to a paste given in cold milk in diabetes; dried and powdered with equal quantity of the root of *Ceiba pentandra* given in spermatorrhoea.

Tropical Himalayas and Western Peninsula.

H. rheedianum Spreng.; see **H. annulare** K. Schum.

HOLOSTEUM (*Caryophyllaceae*)

H. umbellatum Linn.

Refreshing and slightly demulc.

Kashmir and cultivated fields in Quetta Valley.

HOMALOMENA (*Araceae*)

H. aromatica Schott

B.–*Kuchugundubi*.

Rhizome—arom., stim.

Assam and Chittagong.

H. rubescens Kunth

B.–*Gandubikachu*.

Plant—used as a poison by the Malays; enters into the composition of 'ipoh' and is thrown into rivers to poison the water.

Sikkim Himalayas, Khasia Hills and Chittagong.

HOMONOIA (*Euphorbiaceae*)

H. riparia Lour.

S.–*Pashanabedaka*; Tel.–*Cheppunjerinjal*; Kumaon–*Kandagar*.

Decoct. of the root—used in piles, stone in bladder, gonor. and syphilis.

Root—laxt., diur., given for ulcers, strangury, urinary discharges, vesical calculi.

Milky juice contains toxalbumin crepetin (*Ann. Inst. Pasteur*, 1909, 745).*

Rocky river-banks of Sikkim Himalayas, Assam, N. Bengal, Madhya Bharat and Western Peninsula.

HOPEA (*Dipterocarpaceae*)

H. odorata Roxb.
Burm.–*Thengan.*

Resin—in powder form used as styptic.

Bark—astrin.

Copal-like resin (*Bull. Soc. chim. Fr.*, 1919, 579; 1920, 71).

Andamans, from Pegu and Tenasserim to Cochin-China.

HOPPEA (*Gentianaceae*)

H. dichotoma Willd.

Plant—used in piles and in snake-bite.

Throughout India.

HORDEUM (*Gramineae*)

H. vulgare Linn. syn. *H. sativum* Pers.
H., P. & B.–*Jau*; Bo.–*Jav.*; S.–*Divya*; Tam.–*Barliyarisi*; Tel.–*Barlibiyam.*

Grains—demulc., easy of digestion, used in the dietary of sick, parched and powdered much employed in the form of a gruel in cases of painful and atonic dyspep.

As 55 mg. in 100 g. dry and 50 mg. in 100 g. fresh plant (*C.R. Acad. Sci., Paris*, 1914, 268; *Chem. Zbl.*, 1914, II, 885; *J. Amer. chem. Soc.*, 1931, 3046).

Cultivated chiefly in N. India and up to 13,000 ft. in the Himalayas.

HOYA (*Asclepiadaceae*)

H. viridiflora Br.; see **Dregea volubilis** Benth.

HUGONIA (*Linaceae*)

H. mystax Linn.
Kan.–*Modirakkanni*; Mal.–*Moderakkanni*; Tam.–*Agori*; Tel.–*Gatrinta.*

Roots—used externally in reducing inflammatory swellings, and as antid. to snake-bite, internally in form of a powder as febge. and anthelm.

Konkan and N. Kanara of Bombay State, throughout the dry forests of the Madras State.

HUMBOLDTIA (*Leguminosae*)

H. vahliana Wight
S.–*Jelavedesa*; Mal.–*Kurappunnu*; Tam.–*Attuvanji.*

Bark—used in biliousness, leprosy, ulcers and epilepsy.

Nilgiris.

HUMULUS (*Moraceae*)

H. lupulus Linn.
English–*Hop.*

Hop—tonic, stomch., diur., with antisep. affects; it prevents worms, and allays the disquietude of nervous indigestion.

Infusion—tonic, sedative.

Essen. oil, bitter substance, choline, asparagine (*J. chem. Soc.*, 1913, 1267; *Arch. Pharm., Berl.*, 1880, 345; *Pharm. Ztg, Berl.*, 1903, 58; *J. chem. Soc.*, 1903, 505; 1913, 1267; 1928, 785); lupulin (*Chem. Zbl.*, 1932, I, 2780); As, Cu (*Gambrinus*, 1933, 659; *Chem. Zbl.*, 1933, II, 2603).*

N.W. Himalayas. Cultivated. Native of N. America and perhaps of N. Asia.

HUNTERIA (*Apocynaceae*)

H. corymbosa Roxb.; see **H. legocii** Livera.

H. legocii Livera. syn. *H. corymbosa* Roxb.

Tox. alk. in bark 0·3% (Chopra, 496).

Deccan Peninsula; Coromandel Coast, Tinnevelly Ghats and Courtallum.

HURA (*Euphorbiaceae*)

H. crepitans Linn.
Tam.–*Mullarasanam*; Tel.–*Simabruga.*

Juice of bark—a Brazilian remedy for leprosy,

Seeds—emetic, purg.

Leaves—used for chr. pains.

Toxic substance crepitin and alk. (*Ber. dtsch. pharm. Ges.*, 1906, 176; *Ann. Inst. Pasteur*, 1909, 745; *C.R. Soc. Biol., Paris*, 1910, 763).

Introduced into India. A native of Tropical America.

HYBANTHUS (*Violaceae*)

H. enneaspermus F. Muell. syn. *Ionidium enneaspermum* DC.; *I. suffruticosum* Ging.
S.–*Charati*; H.–*Ratan-purus*; B.–*Nunbora*; Tam.–*Orilait tamarai*; Tel.–*Nilakobari.*

Plant—tonic, diur.

Leaves and tender stalks—demulc.

Root—in bowel complaints of children.

Fruit—in scorpion-sting.

Alk. (Dymock, Warden & Hooper, I, 140).

Bundelkhand, Agra, Bengal, almost throughout the Madras State, Gujarat, Khandesh and Carnatic.

HYDNOCARPUS (*Flacourtiaceae*)

H. alpina Wight
Bo.–*Kastel*; M.–*Torathi.*

Seeds contain fatty oil like chaulmoogra oil (*Pharm. Weekbl.*, 1912, 1049).

Moist valleys of the Nilgiri Hills.

H. anthelmintica Pierre

Oil from seed—used in leprosy and many skin affections (*J. chem. Soc.*, 1905, 884; 1907, 557).

Kernel contains oil 64·8-65·5% (*Bull. imp. Inst., Lond.*, 1930, 6); seeds contain 16·3% oil (*Natural appl. Sci. Bull.*, 1936, 27; *Chem. Abstr.*, 1938, 3904); oil contains hydnocarpic acid 67·8%, chaulmoogric acid 8·7%, gorlic acid 1·4%, oleic acid 12·3%, palmitic acid 7·5%, lower homologues of hydnocarpic acid 0·1% (*J. Amer. chem. Soc.*, 1939, 3442; *Chem. Abstr.*, 1940, 1131).

Siam and Indo-China up to 1,000 ft. Cultivated at Singapore.

H. castanea Hk. f. & Thoms.

Uses similar to other species of *Hydnocarpus*.

Andamans, by the sides of torrents.

H. kurzii (King) Warb. syn. *Taraktogenos kurzii* King

Assam–*Memtam*; H. & Bo.–*Chaulmoogra*; M.–*Niradi-mutu*.

Seeds—yield chaulmoogra oil which is used in leprosy and many skin diseases.

Fruit—fish poison.

HCN 0·4% in fresh seeds (*Proc. chem. Soc., Lond.*, 1904, 137; *J. chem. Soc.*, 1904, 836, 838, 851; *J. Amer. chem. Soc.*, 1925, 2325; 1927, 119; *Chem. Zbl.*, 1929, II, 1092; *Pharm. Weekbl.*, 1905, 102); seeds yield 30·9% fixed oil (*Natural appl. Sci. Bull.*, 1936, 27; *Chem. Abstr.*, 1938, 3904); oil contains 34·9% hydnocarpic acid, 22·5% chaulmoogric acid, 22·6% gorlic acid, 14·6% oleic acid, 4·0% palmitic acid, 0·4% lower homologues of hydnocarpic acid (*J. Amer. chem. Soc.*, 1939, 3442; *Chem. Abstr.*, 1940, 1131).

Forests of Upper Assam and Chittagong.

H. laurifolia (Dennst.) Sleumer syn. *H. wightiana* Blume

Bo.–*Kava*, *Kowti*; Marathi–*Kowti*; Mal.–*Koti*; Tam.–*Maravattai*; Tel.–*Niradi*.

Seeds and oil—used in leprosy and skin diseases, fish poison.

Seeds yield fatty oil (*J. chem. Soc.*, 1905; 884; 1907, 557; *J. Amer. chem. Soc.*, 1920, 2626; *J. Indian Inst. Sci.*, 1923, 133; *Philipp. J. Sci.*, 1929, 449); seeds contain 32·4% fixed oil (*Natural appl. Sci. Bull.*, 1936, 27; *Chem. Abstr.*, 1938, 3904); oil contains 48·7% hydnocarpic acid, 27·0% chaulmoogric acid, 12·2% gorlic acid, 6·5% oleic acid, 1·8% palmitic acid, 3·4% lower homologues of chaulmoogric acid (*J. Amer. chem. Soc.*, 1939, 2351; *Chem. Abstr.*, 1939, 8921).

Endemic in tropical forests along the W. Ghats, the Konkan southwards and below the Ghats in Kanara and Malabar in damp situations, especially near water. Common in Travancore up to 2,000 ft.

H. octandra Thw.

Uses similar to other species of *Hydnocarpus*.

Ambamagowa district, Ceylon.

H. odorata Lind.; see **Gynocardia odorata** R. Br.

H. venenata Gaertn.

H.–*Jangli badam*; Bo. & Marathi–*Kauti*; Tam.–*Niridumuttu*; Tel.–*Niruduvittulu*.

Oil—subst. for chaulmoogra oil and used in leprosy and certain cutaneous diseases.

Seeds—fish poison.

(*Ber. dtsch. chem. Ges.*, 1890, 3537; *Philipp. J. Sci.*, 1916, A. 75; 1923, 543; *Pharm. Post*, 1913, 889).

Ceylon by the banks of rivers, ascending to 2,000 ft., also Malabar, Tinnevelly and Travancore.

H. wightiana Blume; see **H. laurifolia** (Dennst.) Sleumer

HYDRANGEA (*Saxifragaceae*)

H. aspera Buch.-Ham.

Fresh plant contains HCN (*Schweiz. ApothZtg*, 1919, 267).

Temperate Eastern Himalayas, Sikkim and Bhutan, 5,000-8,000 ft.

HYDROCOTYLE (*Umbelliferae*)

H. asiatica Linn.; see **Centella asiatica** (Linn.) Urban

H. javanica Thunb.

Used as subst. for *H. asiatica* in Ceylon and Malay Archipelago.

Leaves—tonic, blood purifier, for indign., nervousness and dysen.

Himalayas from Kashmir to Bhutan 2,000-8,000 ft., Khasia Hills 2,000-6,000 ft., Mountains of W. Ghats, Nilgiris and Pulneys.

H. rotundifolia Roxb.

S.–*Mandukaparni*; H.–*Khulkhuri*; B.–*Gimasah*; M.–*Ballarikerai*.

Uses similar to *H. asiatica*.

N.W. Himalayas 4,000-7,000 ft., Bengal Plain, ascending to 4,000 ft. in Sikkim and Khasia Hills and mountains of Malabar.

HYDROLEA (*Hydrophyllaceae*)

H. zeylanica Vahl

S.–*Languli*; B.–*Isha langulya*; Mal.–*Cheruvallel*.

Leaves—antisep., used as poultice for callous ulcers.

Throughout India in wet places and rice-swamps.

HYGROPHILA (*Acanthaceae*)

H. spinosa T. And.; see **Asteracantha longifolia** Nees

HYGRORYZA (*Gramineae*)

H. aristata Nees

B.–*Uridhan*; H.–*Janglidal*; Mal.–*Nirvallipullu*; P.–*Pastal*; S.–*Aranyadhanya*.

Seeds—cooling, astrin. to urinary tract, useful in biliousness.

Upper and Lower Gangetic Plain, Assam, Chittagong and the Deccan.

HYMENOCRATER (*Labiatae*)

H. sessilifolius Benth.

Baluchistan–*Sursanda*.

Infusion of leaves—given as a morning drink to children in Baluchistan.

Baluchistan.

HYMENODICTYON (*Rubiaceae*)

H. excelsum Wall.

H.–*Bhaulan*; Bo.–*Kala kadu*; P.–*Barthoa*; S.–*Bhringhava*; Tam.–*Sagappu*; Tel.–*Bandaru*.

Inner bark—astrin., febge.

Toxic alk. hymenodictine, bitter substance aesculin (*Pharm. J.*, 1883, 311; 1884, 195; *Philipp. J. Sci.*, 1917, 167).*

Base of the Himalayas and Western Peninsula.

HYOSCYAMUS (*Solanaceae*)

H. muticus Linn.

Baluchi–*Koheebhang*.

Used as an intoxicant.

Alks. (*Proc. chem. Soc., Lond.*, 1899, 240; 1900, 207; *J. chem. Soc.*, 1901, 71; *Pharm. J.*, 1903, 159; *Ber. dtsch. chem. Ges.*, 1907, 3869; *Indian J. med. Res.*, 1926); alk. hyoscyamine (*Pharm. Mh.*, 1934, 40; *Chem. Zbl.*, 1934, I, 3084).

W. Punjab, Waziristan, Sind and Baluchistan.

H. niger Linn.

S.–*Parasikaya*; Kash.–*Bazarbang*; H.–*Khurasani-ajvayan*; B.–*Khorasani ajowan*; Bo.–*Khorasani-owa*; Tam.–*Kurasani-yomam*; Tel.–*Kurashanivamam*.

Leaves—sedative, narcotic, anodyne, antisp., mydriatic, employed in irritable conditions and nervous affections, also used in asthma and whooping cough.

Seeds—toxic, astrin. to the bowels.

Alks. (*Liebigs Ann.*, 1833, 270; 1871, 98; 1881, 282; *Trans. chem. Soc.*, 1910, 1329; 1913, 722; *Amer. J. Pharm.*, 1919, 68); leaves—alks. hyoscyamine, scopolamine with little atropine, hyoscypikrin (*Arch. Pharm., Berl.*, 1870, 191, 215); *J. Amer. pharm. Ass.*, 1931, 1163; 1944, 33, 45; *Chem. Zbl.*, 1932, I, 3463).

From Kashmir to Garhwal, 5,000-11,000 ft.

H. reticulatus Linn.

Quetta–*Kohibhang*.

Seed—applied in toothache.

Alk. hyoscyamine (*Bull. imp. Inst., Lond.*, 1911, 115; *Arch. Pharm., Berl.*, 1928, 449).

Baluchistan.

HYPECOUM (*Papaveraceae*)

H. pendulum Linn.

Waziri—*Zirgulaki*.

Extract—used as a cooling drink by the Waziris.

Waziristan and Baluchistan.

H. procumbens Linn.

Juice—has same effect as opium.

Leaves—diaphor.

Alk. protopine (*Arch. Pharm., Berl.*, 1901, 239, 395; *J. Pharm. Chim., Paris*, 1891, 3501; *C.R. Acad. Sci., Paris*, 1892, 1122).

Peshawar, Multan, Salt Range and Baluchistan.

HYPERICUM (*Hypericaceae*)

H. chinense Linn.

Plant—alter., astrin.

Cultivated in Indian gardens. A native of China.

H. humifusum Linn.

In Europe the flowers are infused in olive oil or in alcohol and used as a vulnerary chiefly for old sores and eczema.

Nilgiris.

H. japonicum Thunb.

In China and Indo-China plant used as alter., astrin. and externally as vulnerary.

Temperate and subtropical Himalayas, Khasia Hills, Assam, Eastern and Western Peninsulas.

H. patulum Thunb.

Bihari–*Tumbhul*; Lepcha–*Tumbomri*; Nep.–*Urilo*.

Seeds–arom., stim.

Khasia Hills, 5,000-6,000 ft.; throughout the temperate Himalayas (except Sikkim), 3,000-7,000 ft., from Bhutan to the Ravi.

H. perforatum Linn.

H. & P.–*Bassant*; Urdu–*Balsana*.

Herb—astrin., detersive, resolutive, anthelm., emmen., diur., poisonous to horses.

Red juice—esteemed as a most popular and most curative application in Europe for excoriations, wounds and bruises.

Essen. oil (*J. Amer. pharm. Ass.*, 1927, 824; *J. chem. Soc.*, 1918, 125; *Arch. Pharm., Berl.*, 1925, 161); herb contains 0·5-0·7% glucd. hyperin (*Wiad. farm.*, 1937, 527; *Chem. Zbl.*, 1938, 333; *Chem. Abstr.*, 1939, 7299).*

Temperate W. Himalayas, 6,000-9,000 ft.; Kashmir, Simla, apparently not in Kumaon.

H. sampsoni Hance

In Tongking the plant is used as vulnerary.

Khasia Hills.

HYPOCHAERIS (*Compositae*)

H. glabra Linn.

Root—diur., tonic, aper.

Leaves—astrin.

Herb—vulnerary.

Nilgiris at 7,000-8,000 ft.

HYPOXIS (*Amaryllidaceae*)

H. orchioides Kurz; see **Curculigo orchioides** Gaertn.

HYPTIS (*Labiatae*)

H. pectinata Poit.

In North Nigeria leaf used for fever. In Ashanti and South Nigeria poultice of leaves applied to chest complaints.

In Madagascar plant considered arom., tonic, anthelm., antisp., emmen. and odontalgic.

Bengal, Assam and Madras States.

H. suaveolens Poit.

Uriya–*Gangatulsi*.

Plant—pounded and applied to parasitical cutaneous diseases.

In Brazil infusion used as carmin. and as sudorific in catarrhal conditions.

Plant yields essen. oil containing menthol (Wehmer, II, 1074.)

Deccan Peninsula and Cachar. Introduced.

HYSSOPUS (*Labiatae*)

H. officinalis Linn.

H.–*Zufah-yabis*; Urdu–*Zufah*.

Plant—stim., carmin., pectoral, agreeable remedy in cases of colds, coughs, consumption and lung complaints.

Leaves—stim., stomch., carmin., emmen., useful in hysteria and colic.

Infusion of plant—in asthma and coughs.

Glucd., essen. oil (*Ber. Schimmel u. Co., Lpz.*, 1925, 58; *Pharm. Zentralh.*, 1915, 135; *Pharm. Post*, 1917, 773; *Helv. chim. acta*, 1925, 519); in dogs, intravenous injection of 1-2 cc./kg. of a saturated solution of essen. oil in 33% ethyl alcohol causes a small increase in blood pressure and respiration, then mild clonic convulsions, then a decrease in blood pressure and increase in heart rhythm (*C.R. Soc. Biol., Paris*, 1945, 1111; *Chem., Abstr.*, 1946, 7390).*

W. Himalayas, from Kashmir to Kumaon, 8,000-11,000 ft.

ICHNOCARPUS (*Apocynaceae*)

I. frutescens R. Br.

S.–*Sariva*; H.–*Kalidudhi, Siamalata;* B.–*Dudhi, Shyamalata*; Tel.–*Illukhatti;* Tam.–*Udargodi*; Mal.–*Palvalli*.

Root—properties similar to *Hemidesmus indicus*, alter., tonic, subst. for Sarsaparilla.

Decoct. of leaves and stalks—in fever.

More or less throughout India.

ILEX (*Aquifoliaceae*)

I. aquifolium Linn.

Leaves—emol., diur.

Berries—purg., emetic, diur.

Glucd., bitter substance (*Liebigs Ann.*, 1857, 346; 1848, 253; *Arch. Pharm., Berl.*, 1894, 532).

A native of Europe; introduced in India and found in gardens within the temperate tracts.

I. paraguariensis St. Hilaire syn. *I. paraguayensis* Hook.

Subst. for tea, purg.

Leaves contain caffeine, tannin, resin (*Ann. Chem. Pharm.*, 1843, 366; *Arch. Pharm., Berl.*, 1893, 616; *Bull. Sci. pharm.*, 1910, 249; *J. Amer. pharm. Ass.*, 1922, 609); leaves contain caffeine 0·56-1·39% (*Z. Untersuch. Lebensmitt.*, 1933, 348; *Chem. Zbl.*, 1933, II, 3634); contains inositol (*Rev. Inst. bact., B, Aires*, 1943, 349, 449; *Chem. Abstr.*, 1944, 1321); leaves contain caffeine and trigonelline (*Rev. Quim. industr., Rio de J.*, 1944, 16; *Chem. Abstr.*, 1945, 1964) leaves yield 0·49-0·51% alk. trigonelline (*Arch. Biol., Curitiba*, 1947, 265; *Chem. Abstr.*, 1949, 2373).

A native of Brazil and Paraguay. Cultivated in gardens and public parks and in Lucknow.

ILLICIUM (*Magnoliaceae*)

I. anisatum Linn. syn. *I. religiosum* Sieb. & Zucc.

H.–*Anasphal*; Bo.–*Badian*; M.–*Anashuppu*.

Fruit—stomch., carmin.

Essen. oil (*Ber. dtsch. chem. Ges.*, 1881, 1720; 1886, 1097; *J. Amer. pharm. Ass.*, 1926, 861).*

Japan.

I. griffithii Hk. f. & T.
Fruit—arom., stim., carmin.
Bitter principle.
Bhutan, Khasia Hills, 4,000-5,000 ft.

I. religiosum Sieb. & Zucc.; see **I. anisatum** Linn.

I. verum Hook. f.
Fruit—stomch., carmin.

Essen. oil (*Ber. Schimmel u. Co., Lpz.*, 1893, April, 56; 1910, April, 99; *Amer. J. Pharm.*, 1885, 426; *Bull. Soc. chim., Paris*, 1902, 990; essen. oil, α-pinene, limonine (*J. Soc. chem. Ind., Lond.*, 1931, 410T; *Chem. Zbl.*, 1932, I, 48; *Ber. Schimmel u. Co., Lpz.*, 1932, 63); yields essen. oil containing 80-90% anethole, small quantities of d-pinene, l-phellandrene, ethyl ether of hydroquinine and safrole (*Food*, 1943, 97; *Chem. Abstr.*, 1944, 1076).

A native of Pakhoi in S. China.

IMPATIENS (*Balsaminaceae*)

I. balsamina Linn.
H.–*Gulmendi*; P.–*Bontil*; B.–*Dupati*; Bo.–*Terada*.

Flowers—cooling, tonic, useful when applied to burns and scalds.

Plant—used for pains in the joints, internally acts as emetic, cath. and diur. (*Ber. dtsch. bot. Ges.*, 1908, 438).

Throughout India up to 5,000 ft.

I. chinensis Linn.
M.–*Pylee*.

Plant—used externally for burns and internally in gonor.

W. Ghats, from Konkan to Travancore, ascending to 8,000 ft., in the Nilgiris.

I. tripetala Roxb.
Lakhimpur–*Damdoka, Karyabijal*.
Juice of root—used in haemat.

Tropical Himalayas, Sikkim 2,000-5,000 ft., Bhutan, Duphla Hills, Assam, Sylhet and Khasia Hills up to 3,000 ft.

IMPERATA (*Gramineae*)

I. arundinacea Cyrill.
B., H. & P.–*Ulu*; Bo.–*Dhub*; Tam.–*Dharbai pul*.

Roots—used as emol. in Cambodia, mostly in the fumigation of piles; in China appreciated for their restor., haemostatic and antifebrile properties.

Hotter parts of India from the Punjab southwards and eastwards to Malacca and Ceylon.

I. cylindrica Beauv.; see **I. arundinacea** Cyrill.

INDIGOFERA (*Leguminosae*)

I. anil Linn.; see **I. suffruticosa** Mill.

I. argentea Linn.; see **I. articulata** Gouan

I. articulata Gouan
S.–*Kalaklitaka*; H.–*Surmainil*; Tam.–*Kattavuri*; Tel.–*Kondanili*.
Roots and leaves—bitter, tonic.
Seeds—anthelm.
Sind and Deccan.

I. aspalathoides Vahl ex DC.
S.–*Sivanimba*; P.–*Mil*; Tam.–*Shivanarvembu*; Mal.–*Manali*.

Leaves, flowers and tender shoots—cooling, demulc., employed in decoct. in leprosy and cancerous affections.

Root—chewed as a remedy for toothache.

Plant—rubbed up with butter applied to reduce oedematous tumours.

Leaves—applied to abscesses.

Oil from root—used to anoint the head in erysipelas.

Decoct. of entire plant—given as an alter. in secondary syphilis, psoriasis, etc.

Plains of Carnatic.

I. enneaphylla Linn.
S.–*Vasuka*; Marathi–*Bhuiguli*; Tam.–*Cheppunerunji*; Tel.–*Chalapachi*; Mal.–*Cherupullate*.

Juice of plant—antiscor., alter., diur., used in old venereal affections.

Plains of India.

I. galegoides DC.
Leaves contain HCN-glucd. (*Ber. Schimmel u. Co., Lpz.*, 1894, Oct., 75; 1896, April, 75).

Tropical zone; Khasia and Mergui to Ceylon.

I. glabra Linn.
Leaves—bitter tonic, febge., applied externally as emol.

All over India.

I. glandulosa Willd.
Gujarati–*Vekhariyo*; Tel.–*Baragadam, Barapatam*; Bo.–*Gavachamatmandi*.
Seeds—nutri., tonic.
Western Peninsula and Bundelkhand.

I. linifolia Retz.
H. & P.–*Torki*; B. & Bo.–*Bhangra*.

Plant—given in febrile eruptions and used in amenor.

Yields a lactone linifolin and a wax (*Proc. nat. Acad. Sci. India*, 1938, 49).

Throughout India and Baluchistan.

I. oblongifolia Forsk.
S.–*Jhilla, Raktapala*; Tam.–*Kuttukkarchammathi*.

Therapeutic properties considered similar to *I. tinctoria*; considered antid. to poisons of all kinds.

Throughout the plains of India and Baluchistan.

I. paucifolia Del.; see **I. oblongifolia** Forsk.

I. pulchella Roxb.
H. & Kumaon–*Sakena*; Marathi–*Baroli*; Tam.–*Narinji*; Mal.–*Manali.*

Decoct. of root—given in cough.

Powder of root—applied externally for pain in chest.

Throughout the hills of India.

I. tinctoria Linn.
S.–*Nilika*; H. & B.–*Nil*; Bo.–*Nila*; Mal.–*Nilam*; Tam. & Tel.–*Nili.*

Juice of leaves—prophylactic against hydrophobia.

Extract of plant—given in epilepsy and nervous disorders, used in broncht., and as ointment in sores, old ulcers, and haemorrhoids.

Root—used in hepatitis, scorpion-sting.

Glucd. indican in entire plant (*J. chem. Soc.*, 1907, 279, 1715; *Proc. chem. Soc., Lond.*, 1907, 30, 116).*

Widely cultivated in many parts of India.

I. trifoliata Linn.
Bo.–*Vekaria*; H.–*Ganglimethi*; Marathi–*Lalmeti*; Tel.–*Baragadamu.*

Seeds—restor., alter., astrin., aphrodis., tonic, used in rheumatism and leucor.

Throughout India.

I. trita Linn. f.
Gujarati–*Vekhario*; Kan.–*Torementi*; Tam.–*Kandaram*; Tel.–*Nakkanaru.*

Seeds—used as a nutritive tonic.

Throughout India.

INULA (*Compositae*)

I. grantioides Boiss.
Las Bela–*Naro.*

Plant—given steeped in water to patients suffering from asthma.

Cutch, Sind, Baluchistan, Waziristan.

I. graveolens Desf.
Plant—used as diur., useful in calculous diseases.

N.W. India in wasteland.

I. helenium Linn.
Pers. & Arab.–*Rasan.*

Plant—used in chr. broncht. and rheumatism.

Essen. oil, bitter principle, benzoic acid (*C.R. Acad. Sci., Paris*, 1893, 514; *Amer. chem. J.*, 1904, 69; *Ber. Schimmel u. Co., Lpz.*, 1912, April, 23; 1915, April, 7); bitter substance (*J. prakt. Chem.*, 1933, 176; *Chem. Zbl.*, 1933, I, 2951); roots contain inulin, pseudo-inulin and inulenin (U.S.D., 1489); roots yield alantolactone, *iso*alantolactone and dihydroalantolactone; alantolactone less toxic than santonin (*Proc. imp. Acad., Japan*, 1936, 233; *Chem. Abstr.*, 1937, 1878); chemical composition similar to santonin (*Livro Jubilar Prof. Travassos, Rio de Janeiro, Brazil*, 1938, 5; *Chem. Abstr.*, 1940, 3369); toxic action is general paralysis and respiratory distress culminating in death; dihydro-*iso*alantolactone possesses the greatest cardiac toxicity (*Jap. J. med. Sci.* IV. *Pharmacology*, 1941, 75; *Chem. Abstr.*, 1943, 5138).*

Europe and N. Asia.

I. racemosa Hook. f.
Arab.–*Rasan*; Kash.–*Poshkar.*

Root—used as expect. and as resolv. in indurations, and in vet. medicine as tonic and stomch.

Temperate and alpine W. Himalayas, 5,000-14,000 ft., Kashmir, 5,000-7,000 ft.

I. royleana DC.
Kash.–*Zahelniilkohee.*

Plant—considered poisonous, disinfectant, insecticidal.

Root—used to adulterate the roots of *Saussurea lappa.*

Root contains 3% alk.; alk. produces fall in blood pressure and stimulates tone and peristaltic movements of intestines (*Indian J. med. Res.*, 1945, 139; *Chem. Abstr.*, 1946, 6681).

Temperate W. Himalayas, 7,000-11,000 ft.

IONIDIUM (*Violaceae*)

I. enneaspermum DC.; see **Hybanthus enneaspermus** F. Muell.

I. suffruticosum Ging.; see **Hybanthus enneaspermus** F. Muell.

IPOMOEA (*Convolvulaceae*)

I. aquatica Forsk.; see **I. reptans** (Linn.) Poir.

I. batatas Lam.
H. & P.–*Shakar kund*; B.–*Ranga-alu*; Bo.–*Ratalu*; Tam.–*Sakkarei-vellei-kilangu*; Tel.–*Chelagada*; Mal.–*Kapahalenga.*

Root—laxt.

(*Ber. dtsch. chem. Ges.*, 1890, 1406; *Arch. Pharm., Berl.*, 1909, 184; *J. biol. Chem.*, 1915, 503); ipomocin (*J. biol. Chem.*, 1931, 119; *J. Indian chem. Soc.*, 1934, 339); enzyme (*J. Indian chem. Soc.*, 1944, 223).

Cultivated in India, a native of America.

I. biloba Forsk.; see **I. pes-caprae** Sw.

I. bona-nox Linn.; see **Calonyction aculeatum** House

I. campanulata Linn.
Marathi–*Goili*; Kan.–*Kuginiballi.*

Plant—said to be antid. to snake poison.

Konkan, W. Ghats, Deccan, S. Mahrata Country and N. Kanara.

I. coccinea Linn.; see **Quamoclit coccinea** Moench

I. cymosa Roem. & Schult.; see **Merremia umbellata** (L.) Hallier

I. dasysperma Jacq.
Gujarat–*Dipdavel.*
Seeds—used in hydrophobia.
Rohilkhand and Deccan Peninsula.

I. digitata Linn.; see **I. paniculata** R. Br.

I. dissecta Willd.

Leaves—used to cure chest complaints of children in the Gold Coast.

HCN in sap (*Arch. Pharm., Berl.*, 1909, 184).

W. India and the Deccan.

I. eriocarpa R. Br.; see **I. hispida** Roem. & Schult.

I. fastigiata Sweet

Glucd. ipomoein (*Amer. J. Pharm.*, 1881, 384).

Bengal. Introduced from America.

I. hederacea (Linn.) Jacq.

H., B. & Bo.–*Kaladana*; S.–*Krishnabija*; Tam.–*Kakkattan*; Tel.–*Jirki*.

Seeds—purg., subst. for jalap.

Glucd. (*Arch. Pharm., Berl.*, 1896, 459; *Pharm. J.*, 1924, 155; *J. pharm. Soc. Japan*, 1922, 419; *J. Coll. Agric. Tokyo*, 1931, 241; *Proc. imp. Acad., Japan*, 1926, 274; 1934, 389; *Chem. Zbl.*, 1934, I, 3605); resin 14·2-15·3% (*Indian J. Pharm.*, 1948, 70; *Chem. Abstr.*, 1949, 3565).

Throughout India both cultivated and apparently wild, up to 6,000 ft. in the Himalayas.

I. hispida Roem. & Schult.

P.–*Bhanwar*; S.–*Nakhari*; Assam–*Kalman*; Tel.–*Purititige*.

Plant—boiled in oil used to cure rheumatism, headache, epilepsy, leprosy and ulcers.

Phytosterin glucd. epuranol, resin, etc. (*Amer. J. Pharm.*, 1908, 264; *J. chem. Soc.*, 1911, 937; 1913, 399, 1022).

Throughout India.

I. muricata Jacq.; see **Calonyction muricatum** (Linn.) G. Don

I. obscura Ker-Gawl.

Tam.–*Siruttali*; S.–*Vachagandha*; Tel.–*Nallakokkita*; Mal.–*Cherutali*; Marathi–*Pilibonvari*.

Leaves—toasted, powdered, and boiled in ghee considered valuable application in aphthous affections.

Throughout India.

I. paniculata R. Br.

S.–*Bhumikushmanda*; H.–*Bilaikand*; B.–*Bhumikumra*; Bo.–*Bhuikohala*; Mal.–*Palmutakku*; Tam.–*Nilappuchani*; Tel.–*Palamodikku*.

Roots—tonic, alter., aphrodis., demulc., lactag., purg., cholag., in scorpion-sting.

Resin similar to jalap resin.

Throughout tropical India in moist regions.

I. pes-caprae Sw. syn. *I. biloba* Forsk.

B.–*Chhagulkuri*; Bo.–*Marjavel*; H.–*Do-patilata*; Mal.–*Atampa*; S.–*Sagaramkhala*; Tam.–*Attukkal*; Tel.–*Chivulapillitige*.

Herb—astrin., stomch., laxt.

Leaves—externally applied in rheumatism and colic.

Juice—given as diur. in dropsy and at the same time bruised leaves applied to the dropsical part.

Alk. in root (Dymock, Warden & Hooper, II, 539); whole drug contains total resin 7·27%, essen. oil 0·048%, pentatriacontane, triacontane, sterol, behenic acid, melissic acid, butyric acid and myristic acid (*J. Amer. pharm. Ass.*, 1983, 585; *Chem. Abstr.*, 1938, 7673).

Throughout India, abundant near the sea.

I. pes-tigridis Linn.

B.–*Langulilata*; Mal.–*Pulichuvatu*; Tam.–*Pulichovadi*; Tel.–*Mekamadugu*.

Root—purg., antid. to dog-bite, used in boils and carbuncle.

Resin (*Pharm. J.*, 1924, 155, 357).

More or less throughout India.

I. purga Hayne; see **Exogonium purga** Benth.

I. quamoclit Linn.; see **Quamoclit pennata** Bojer

I. reniformis Chois.

S.–*Mushakarni*; H.–*Musakani*; B.–*Undirakanipana*; Bo.–*Undirkani*; Tam.–*Perettaikkiray*; Tel.–*Toinnuatali*.

Plant—deobstruent, diur., alter., used in rheumatism and neuralgia.

Bengal, Konkan, Deccan and Carnatic.

I. reptans (Linn.) Poir.

S.–*Kalambi*; B.–*Kalmisak*; Bo.–*Nalichibaji*; Tam.–*Sarkareivalli*; Tel.–*Tutikura*; P.–*Ganthian*.

Juice—emetic, purg., antid. to opium and arsenical poisoning.

Plant—considered wholesome for females suffering from nervous and general debility.*

Throughout India, especially in the Bengal, Bombay State, Bihar, Orissa, and S. India.

I. sepiaria Koen.
B. & H.–*Bankalmi*; Tam.–*Talikkirai*; Tel.–*Mettatuti*; Mal.–*Tirutali*; S.–*Manjika*.

Juice—deobstruent, diur., antid. to arsenic.

Throughout India.

I. sinuata Ort.
HCN in sap (Fluckiger, Pharmacognosie, 1891, 1012).

N.W. India, Bengal.

I. tridentata Roth; see **Merremia tridentata** Hallier f.

I. tuberosa Linn.
Tuber—drastic purg.

Cultivated in India. A native of Tropical America.

I. turpethum R. Br.; see **Operculina turpethum** (Linn.) Silva Manso

I. uniflora Roem. & Schult.
Sing.–*Potupala*.

Plant–purg.

Juice—used in bilious dyspep.

Throughout India.

I. vitifolia Sweet; see **Merremia vitifolia** Hallier f.

IRIS (*Iridaceae*)

I. ensata Thunb.
H.–*Irisa, Sosun*; Kash.–*Marjal, Unarjal*.

Root—used as alt., enters into many compositions for purifying blood and for venereal affections; also useful in liver complaints and dropsy.

Western Himalayas, 5,000-9,000 ft.

I. foetidissima Linn.
H.–*Dadmari*; B.–*Dabiduba*; M.–*Kochillittipulla*.

Used as a cure for ringworm.

Essen. oil, bitter substance; glucd. (Wehmer, I, 170; *C.R. Acad. Sci., Paris*, 1927, 475).*

W. and S. Europe, N. Africa.

I. germanica Linn.
S.–*Padma-pushkara*; H., Bo. & Ind. Baz.–*Keore-ka-mul*.

Root—alter., aper., diur., cath., used in gallbladder diseases.

Essen. oil (*Ber. Schimmel u. Co., Lpz.*, 1907, April, 53; 1908, Oct., 62); glucd. iridin (*Ber. dtsch. chem. Ges.*, 1893, 2010; *Hoppe-Seyl. Z.*, 1913, 271; *J. chem. Soc.*, 1928, 22).

Cultivated in Kashmir.

I. kumaonensis Wall.
P.–*Piaz, Karkar, Tezma*.

Root and leaves—given in fever.

Western Himalayas, from Kashmir to Kumaon, 8,000-12,000 ft.

I. nepalensis D. Don
H. & P.–*Chiluchi, Shoti, Sosan*.

Root—deobstruent, aper., diur., useful in bilious obstructions; used externally as an application to small sores and pimples.

Temperate Himalayas, from the Punjab and Western Tibet eastwards, 5,000-10,000 ft. and Khasia Hills, 5,000-8,000 ft.

I. soongarica Schrenk
Pushtu–*Gharwasha*.

Roots—powder in curds used to stop diar.

Baluchistan.

ISOPYRUM (*Ranunculaceae*)

I. thalictroides Linn.
Alk. isopyroine, HCN (*J. Amer. chem. Soc.*, 1903, 99; *C.R. Soc. Biol., Paris*, 1922, 50; *Chem. Zbl.*, 1922, I. 697; *C.R. Acad. Sci., Paris*, 1919, 316).

Temperate Western Himalayas, north of Kashmir and Lahul.

IXORA (*Rubiaceae*)

I. coccinea Linn.
S.–*Bandhuka*; H. & B.–*Rangan*; Bo.–*Pendgul*; M.–*Tachi*; Tam.–*Vedji*; Tel.–*Koranam*; Mal.–*Techi*.

Flowers—in dysen., and dysmen.

Indigenous in the Western Peninsula, cultivated throughout India.

I. cuneifolia Roxb.
Infusion of leaves—given in fevers in Indo-China.

Assam.

I. nigricans Br.
Tam.–*Mashagani*; Kan.–*Adayala*; Marathi–*Katkura, Lokhandi*.

Leaves—considered antidysen. in Indo-China.

Eastern and Western Peninsulas.

I. parviflora Vahl
H.–*Kotagandhal*; B.–*Rangan*, Bo.–*Kurat*; Tam.–*Sulundu*; Tel.–*Korivipala*; S.–*Nevali*.

Root or fruit—given to females when the urine is highly coloured.

Upper Gangetic Plain, Bengal, Chittagong, Madhya Pradesh, Bombay State, in almost all districts of Madras State.

JASMINUM (*Oleaceae*)

J. angustifolium Vahl
H.–*Banmallika*; S.–*Kanamallika*; Tam.–*Kattumalligai*; Tel.–*Garudamalle*; Mal.–*Kattumallika*.

Root—bitter, ground small and mixed with the powdered root of *Acorus calamus* and lime-juice, considered useful external application in cases of ringworm.

Circars, Deccan and Carnatic, on eastern side, down to Travancore.

J. arborescens Roxb.

H.–*Chameli*; B.–*Burakunda*; Bo.–*Kusar*; S.–*Navamallika, Saptala*; Tam.–*Nagamalli*; Tel.–*Nagamalle.*

Leaves—slightly bitter, astrin., tonic, stomch.

Juice of leaves—used with pepper, garlic and other stimulants as an emetic, in obstruction of the bronchial tubes by viscid phlegm.

Upper Gangetic Plain, ascending to 3,000 ft. on the Himalayas, Bengal, Central and S. India, hills of Ganjam and Vizagapatam.

J. auriculatum Vahl

S., Kan. & Tel.–*Magadhi*; Tam.–*Udigai*; Mal.–*Bolidda.*

Flowers—given in consumption.

Deccan, Carnatic, Western Peninsula.

J. bignoniaceum Wall.; see **J. humile** Linn.

J. chrysanthemum Roxb.; see **J. humile** Linn.

J. flexile Vahl

M.–*Mullu-gundu.*

Bitter glucd. (Dymock, Warden & Hooper, II, 380).

Deccan Peninsula.

J. grandiflorum Linn.; see **J. officinale** Linn. var. **grandiflorum** Bailey

J. humile Linn. syn. *J. bignoniaceum* Wall.

S., Bo. & Tel.–*Hemapushpika*; H.–*Pitmalti*; B.–*Svarnajui*; P.–*Chamba*; Tam.–*Semmalligai*; Mal.–*Pita.*

Flowers—tonic to the heart and bowels, astrin.

Root—used in ringworm.

Milky juice of the plant—used for destroying the unhealthy lining walls of chr. sinuses and fistulas.

Madras State, W. Ghats, the Nilgiris, Pulneys and hills of Malabar and Travancore, above 5,000 ft.

J. multiflorum Andr. syn. *J. pubescens* Willd.

S.–*Kunda*; H. & B.–*Kundphul*; Marathi–*Mogra*; Tam.–*Magarandam*; Tel.–*Kundamu*; Mal.–*Kundam.*

Flowers—emetic.

Dried leaves—soaked in water and made into a poultice used in indolent ulcers to generate a healthy action.

Root—antid. to cobra venom.

Throughout India.

J. officinale Linn.

S.–*Ganika*; H. & Kash.–*Chamba*; P.–*Dumni, Suni*; Kan.–*Sannajajimallige.*

Root—used in ringworm.

Alk. jasminin; essen. oil from flowers (*Repert. Pharm.*, 1834, 101; *Ber. Schimmel u. Co., Lpz.*, 1929, 51).

Himalayas, 3,000-9,000 ft., from the Indus eastwards, extending into the inner valleys, trans-Indus. Often cultivated in India.

J. officinale Linn. var. **grandiflorum** Bailey syn. *J. grandiflorum* Linn.

S. & H.–*Chambeli, Jati*; B.–*Chameli, Jati*; Tam.–*Pichi*; Mal.–*Pichakam*; Bo.–*Chambeli*; Tel.–*Jaji.*

Leaves—chewed as a treatment for ulcerations or eruptions in the mouth; the fresh juice applied to corns; an oil prepared with the juice of leaves poured into the ear in otorrhoea.

Flowers—used as an application in skin diseases, headache and weak eyes and in scorpion-sting.

Plant—anthelm., diur., emmen.

Alk., salicylic acid in leaves (Dymock, Warden & Hooper, II, 378); flower gives essen. oil (*Chem. & Drugg.*, 1929, 778; *Chemikerztg*, 1910, 912; *J. Soc. chem. Ind., Lond.*, 1909, 227; *Ber. dtsch. chem. Ges.*, 1933, 1521; *Chem. Zbl.*, 1933, II, 3571; *Riv. ital. Essenze*, 1939, 51; *Chem. Zbl.*, 1939, 4542; *Chem. Abstr.*, 1940, 7534; *Indin Soap J.*, 1951, 235, 259; *Chem. Abstr.*, 1951, 10507).*

Subtropical N.W. Himalayas, 2,000-5,000 ft., Salt Range, trans-Indus, eastwards to Kumaon, hills of Rajputana and Madhya Bharat. Often cultivated in Indian gardens.

J. pubescens Willd.; see **J. multiflorum** Andr.

J. ritchiei C. B. Clarke

Tam.–*Karumullai*; Tel.–*Adivimalle.*

Leaves—used in toothache.

Flowers—in piles.

Western Peninsula, the Nilgiris, Bababudan Hills and Belgaum.

J. rottlerianum Wall.

Kan.–*Varamallige*; Tam.–*Erumaimullai*; *Uyyakondan.*

Leaves—used in eczema.

Western Peninsula, from Konkan to Travancore.

J. sambac Ait.

S.–*Mallika*; H.–*Motia, Mugra*; Bo.–*Bel, Mogra*; B.–*Mogri*; Tam.–*Malligai*; Tel.–*Bondumalle*; Mal.–*Mulla.*

Plant—cooling, used in cases of insanity, weakness of sight and affections of the mouth.

Root—emmen.

Flowers—lactifuge, applied unmoistened to breasts to arrest secretion of milk in puerperal state in cases of threatened abscess.

Dried leaves—soaked in water and made into a poultice used in indolent ulcers.

Essen. oil from flowers (*Riv. ital. Essenze*, 1939, 51; *Chem. Zbl.*, 1939, 4542; *Chem. Abstr.*, 1940, 7574).

Cultivated throughout India.

J. scandens Vahl

Nep.–*Harelachara*.

Root—used in ringworm.

Bitter principle (*Meded. PlTuin, Batavia*, 1899, 132).

Lower hills of Sikkim, Assam, Khasia, Cachar, Bengal and Chittagong.

JATEORHIZA (*Menispermaceae*)

J. palmata Miers

Bo.–*Colombo*; Tam.–*Kolumbu*; Tel.–*Kalamba*.

Root—bitter tonic, stomch., used in dysen. and functional atonic conditions of the digestive organs, especially with other tonics, aromatics, or cathartics.

Alks. columbamine, jateorhizine and palmatine (Allen, 1923-33, I-X; Henry, 1939, 346); contains a lactone palmarin (*Mh. Chem.*, 1936, 21; *Chem. Abstr.*, 1936, 5998; *Mh. Chem.*, 1937, 30; *Chem. Abstr.*, 1937, 4334); bitter principle chasmanthin (*Mh. Chem.*, 1937, 10; *Chem. Abstr.*, 1938, 575); bitter principle columbin (*Chem. Abstr.*, 1938, 4570); disogenin, kryptogenin (*J. Amer. chem. Soc.*, 1947, 2242).

Cultivated in some parts of India.

JATROPHA (*Euphorbiaceae*)

J. curcas Linn.

S.–*Kananeranda*; H. & B.–*Bagbherenda*; Bo.–*Mogalieranda*; Mal.–*Kattavanakku*; Tel.–*Katiyamudamu*; Tam.–*Kattamanakku*.

Roasted nuts—purg.

Seeds—purg.

Juice of the plant—useful in scabies, eczema and ringworm.

Twigs—used for tooth brushing in swollen gums.

Leaves—used in form of decoct. and cataplasm to the mammae as a lactag., rubft.

Plant—fish poison.

Seed contains toxic principle curcin (*Chem. Zbl.*, 1914, 1958; *Bull. imp. Inst., Lond.*, 1921, 288; *Pharm. J.*, 1908, 161; U.S.D., 1355); seed kernels give fatty oil, 2 phytosterols, a phytosterolin (glucd. of phytosterol), large amount of sucrose and resinous matter having nauseating, purging and griping effect (*J. Univ. Bombay*, 1945, 34; *Chem. Abstr.*, 1946, 3228).*

Grown in various parts of India as a field barrier especially on the Coromandel Coast and in Travancore. Common hedge-plant in Konkan. Native of Tropical America.

J. glandulifera Roxb.

S.–*Nikumba*; B.–*Lalbherenda*; H. & Bo.–*Janglierandi, Undarbibi*; Mal.–*Nakadanti*; Tam.–*Adalai*; Tel.–*Dundigamu*.

Fixed oil from seeds—purg., used in chr. ulcerations, foul wounds, ringworm, in rheumatism and paralysis.

Juice of the plant—used to remove film from the eyes.

Root—brayed with water given to children suffering from abdominal enlargements; purg., said to reduce glandular swellings.

Bengal, Northern Circars, Deccan and Carnatic, from the Kistna river southwards, rare in Oudh and Punjab.

J. gossypifolia Linn.

Kan.–*Kariturukaharalu*; Mal.–*Simayavanakku*; Tam.–*Kattamanakku*; Tel.–*Nepalemu*.

Leaves—applied to boils and carbuncles, eczema and itches.

Decoct. of the bark—emmen.

Seeds—cause insanity and act as an emetic.

Leaves and seeds—purg.

Naturalized in many parts of India. A native of Brazil.

J. multifida Linn.

S.–*Vishabhadra*; Kan.–*Vilayatiharalu*; Tam.–*Malaiyamanaku*.

Seeds—purg., emetic.

Leaves—used in scabies.

Latex—applied over wounds and ulcers.

Oil from seeds—used both internally and externally as abortif.

Fatty oil, bitter substance (*Arch. Pharm., Berl.*, 1887, 415; *Ber. dtsch. pharm. Ges.*, 1905, 183, 225; *Perfum. essent. Oil Rec.*, 1935, 219).

Cultivated in gardens everywhere. A native of S. America.

J. nana Dalz. & Gibs.

Bo. & Marathi-*Kirkundi*.

Juice—used as counter-irrit. in ophthalmia.

Deccan, stony places near Poona, Bombay and throughout Konkan.

JUGLANS (*Juglandaceae*)

J. regia Linn.

S.–*Akschota*; H. & B.–*Akhrot*; Bo. & Marathi–*Akroda*; Tam. & Tel.–*Akrottu*.

Bark—anthelm., detergent.

Leaves—astrin., tonic, in decoct. considered to be specific in strumous sores, anthelm.

Fruit—alter. in rheumatism.

Alk., barium (*Amer. J. Pharm.*, 1886, 468; *Ber. dtsch. chem. Ges.*, 1884, 1045; *J. Amer. chem. Soc.*, 1896, 609; 1903, 845); As—0·013 mg. in 100 g. seeds (*C.R. Acad. Sci., Paris*, 1912, 893);

oxalic acid in fruits (*Chem. News*, 1916, 62); juglon (*Pharm. Zentralh.*, 1931, 97; *Chem. Zbl.*, 1931, I, 3379).*

Temperate Himalayas, 3,000-10,000 ft., wild and cultivated, Khasia Hills, cultivated, and Baluchistan.

JUNCELLUS (*Cyperaceae*)

J. inundatus C. B. Clarke

B. & H.–*Pati*.

Tubers—tonic, stim.

Frequent in swamps in Bengal, from Sylhet to the sea.

JUNIPERUS (*Cupressaceae*)

J. communis Linn.

H.–*Aaraar*; P.–*Petthri*; B.–*Havusha*; S.–*Vapusha*; Dec.–*Abhal*; Kumaon–*Chichia*; Kash.–*Betar*, *Pethra*.

Fruit and oil—diur., carmin., stim., used in dropsy, gonor., gleet, leucor. and some cutaneous diseases.

Berries contain oxalic acid (*J. Amer. chem. Soc.*, 1906, 1198; *Ber. Schimmel u. Co., Lpz.*, 1910, Oct., 128; *Indian For. Rec.*, 1924, 6; *Indian J. med. Res.*, 1929, 3); yield 0·8-1·2% essen. oil (*Amer. Perfum.*, 1936, 64, 91; *Chem. Abstr.*, 1936, 6131); infusion of berries has great diur. effect (*Arch. exp. Path. Pharmak.*, 1938, 522); berries contain, besides essen. oil, resin 8%, 'juniperin' 0·36% (*Pharm. Acta Helvet.*, 1938, 307; *Chem. Abstr.*, 1940, 849).*

Western Himalayas from Kumaon westwards, 12,500-14,000 ft.

J. excelsa Bieb.

Smoke of the branches—used in delirium of fever.

Essen. oil (*Ber. Schimmel u. Co., Lpz.*, 1923, 239; *Trud. nauch. khim.-farm. Inst., Mosk.*, 1927, 151).

Himalayas and W. Asia to Greece.

J. macropoda Boiss.

H. & Garhwal–*Dhup*; Nep.–*Dhupi*; P.–*Luir*, *Shurgu*.

Fruit—properties same as of *J. communis*.

Essen. oil (*Indian J. med. Res.*, 1929, 3).

Himalayas, from Nepal westwards up to 14,000 ft., and Baluchistan.

J. recurva Ham.

H.–*Bettir*; Nep.–*Tupi*; P.–*Bettar*, *Wetyar*.

Smoke from green wood—emetic, producing long-continued vomiting.

Temperate and alpine Himalayas, 7,500-15,000 ft.

JURINEA (*Compositae*)

J. macrocephala Benth.

P.–*Dhup*; Kash.–*Dhup*, *Gugal*.

Decoct. of root—cordial, given in colic and puerperal fever.

Bruised root—applied to eruptions.

Western Himalayas, from Kashmir to Kumaon, 11,000-14,000 ft.

JUSSIAEA (*Onagraceae*)

J. suffruticosa Linn.

S.–*Bhulavanga*; H.–*Banlaunga*; B.–*Bunlung*, *Lalbunlunga*; Marathi–*Panalavanga*; Mal.–*Karyampu*; Tam.–*Nirkkrambu*; Tel.–*Niruyagnivendramu*.

Plant—reduced to pulp and steeped in butter-milk considered useful in dysen.

Decoct.—vermifuge, purg.

Root—boiled and the liquid drunk in fever.

Throughout India.

JUSTICIA (*Acanthaceae*)

J. ecbolium Linn.; see **Ecbolium linneanum** Kurz

J. gendarussa Burm. syn. *Gendarussa vulgaris* Nees

S.–*Nila-nirgundi*; H.–*Nili-nargandi*; B.–*Jagatmadan*; Bo.–*Kala-adulsa*; Mal.–*Vatankolli*; Tam.–*Karunochi*; Tel.–*Addasaramu*.

Leaves and tender shoots—diaphor., given in form of decoct. in chr. rheumatism.

Infusion of leaves—given internally in cephalalgia, hemiplegia and facial paralysis.

Juice of leaf—for earache.

Plant—febge., emetic.

Alk. (*Meded. PlTuin, Batavia*, 1897, 74; 1899, 74; 1899, 55, 137; *Proc. Indian Sci. Congr.*, 1930).

Cultivated throughout India and often found as an escape.

J. picta Linn.; see **Graptophyllum pictum** (L.) Griff.

J. procumbens Linn.

Bo.–*Ghati-pitpapra*, *Pitpapada*; Sing.–*Mayani*.

Plant—used as subst. for *Fumaria parviflora*, laxt., diaphor., diur.

Juice of leaves—used in ophthalmia.

Konkan, W. Ghats of Bombay and Madras States, western coast of Madras State to Travancore.

KAEMPFERIA (*Zingiberaceae*)

K. angustifolia Rosc.

H. & B.–*Kanjan-bura*.

Roots—used in vet. practice.

Foot of E. Himalayas and Bengal.

K. galanga Linn.

S.–*Chandra mulika*; H.–*Chandramula*; B.–*Chandu-mula*; Bo. & Marathi–*Kapur-kachri*; Tam.–*Kacholum*; Tel.–*Kachoram*; Mal.–*Katjulam*.

Tubers—stim., expect., diur., carmin., reduced to powder and mixed with honey given in coughs and pectoral affections; boiled in oil externally applied to stoppages of the nasal organs.

Essen. oil (*Ber. Schimmel u. Co., Lpz.*, 1900, Oct., 37; 1903, April, 38; *J. Indian Inst. Sci.*, 1926, 133); alk. (Dymock, Warden & Hooper, III, 416).

More or less throughout India. Cultivated.

K. rotunda Linn.

S.–*Bhuchampaka*; H. & B.–*Bhuichampa*; Bo. & Marathi–*Bhuichampa*; Tel.–*Kondakalava*.

Root—stomch., applied to reduce swellings, in form of a poultice used to promote suppuration.

Tuber—in powder form local application in mumps.

Plant—reduced to powder used in form of an ointment efficacious in healing fresh wounds; taken internally removes any coagulated blood or purulent matter.

Tuber contains essen. oil (*Ber. Schimmel u. Co., Lpz.*, 1894, April, 57).

Throughout India from the Himalayas to Ceylon.

KALANCHOE (*Crassulaceae*)

K. laciniata DC.

S.–*Hemasagara*; H. & B.–*Hamsagar*; Bo.–*Zakhmhyat*; Tam.–*Malakalli*.

Juice of leaves—styptic, used on fresh cuts and abrasions, on bruises, burns and superficial ulcers, given in bilious diar. and lithiasis.

Succulent leaves—valued as application to wounds and sores; allay irritation and promote cicatrization.

Bengal, Deccan, S. Mahrata Country.

K. pinnata Pers. syn. *Bryophyllum pinnatum* Kurz; *B. calycinum* Salisb.

B.–*Koppata*; H. & Deccan–*Zakhmhaiyat*; S.–*Asthibhaksha*; Bo.–*Ghayamari*; Tam.–*Runakalli*; Tel.–*Simajamuda*.

Leaves—bitter, slightly toasted used as an application to bruises, wounds, boils and bites of insects.

Leaves contain malic, isocitric and citric acids (*Indian J. med. Res.*, 1934, 268).

Naturalized throughout the hot and moist parts of India, particularly common in Bengal.

K. spathulata (Poir.) DC.

H. & P.–*Haiza, Tatara*; Kumaon–*Bakalpatta, Patkuari*; Nep.–*Hathokane*.

Plant—poisonous to goats.

Leaves—used in cholera and burnt and applied to wounds.

Tropical and subtropical Himalayas from Kashmir to Kumaon, 1,000-4,000 ft., but near Simla up to 6,000 ft. Also in the Deccan and S. Mahrata Country.

KANDELIA (*Rhizophoraceae*)

K. rheedii W. & A.

B.–*Guria;* Tam.–*Kandal;* Kan.–*Kandale*; Tel.–*Kandigala*; Mal.–*Kantal*.

Bark—mixed with dried ginger or long pepper and rose water considered a cure for diabetes (*J. prakt. Chem.*, 1864, 361).

Tidal shores of India.

KEDROSTIS (*Cucurbitaceae*)

K. rostrata Cogn.

Tel.–*Kukumadunda*.

Root—prescribed internally in electuary in cases of piles, in powder used as demulc. in humoral asthma.

Gujarat, Konkan, S. Mahrata Country, Malabar, Deccan and Carnatic.

KICKXIA (*Scrophulariaceae*)

K. ramosissima (Wall.) Janchen syn. *Linaria ramosissma* Wall.

Gujarati—*Bhintgalodi, Kanodi*.

Plant—valued as a remedy for diabetes.

Throughout India, usually in rocky and stony places.

KLEINHOVIA (*Sterculiaceae*)

K. hospita Linn.

Sundarbans—*Bhola*.

Decoct. of leaves—used in the Philippine Islands for scabies, and as lotion for cleaning skin eruptions.

Eastern and Western Peninsulas of India.

KOCHIA (*Chenopodiaceae*)

K. indica Wight

P.–*Bui, Kauraro*.

Plant—cardiac stim., used in cases of weak and irregular heart.

N.W. India, Sind, Deccan Peninsula.

K. scopária Schrad.

Leaves and fruits—cardiotonic.

N.W. India.

K. sedoides Schrad.

Plant—used as medicine for worms; it is crushed in cold water and allowed to stand overnight, and swallowed in the morning with some sweetmeat.

Sind.

KOKOONA (*Celastraceae*)

K. zeylanica Thwaites

Sing.–*Kokun, Pottueta*.

Powdered inner bark—used as snuff in headache.

Oil—used for protection against leeches.

Anamalais.

KYDIA (*Malvaceae*)

K. calycina Roxb.

H. & P.–*Pola, Pula*; Bo.–*Varanga*; Mal.–*Velukku*; Tam.-*Vendai*; Tel.– *Potari*.

Leaves—pounded and made into a paste applied in rheumatism and lumbago.

Tropical Himalayas from the Indus eastwards, Satpuras, Western Peninsula along the Ghats, Konkan and N. Kanara in deciduous forests, Deccan hills of the Poona district, in the Madras State in most districts of the N. Circars and Deccan in deciduous forests, scarce on the Western coast.

KYLLINGA (*Cyperaceae*)

K. brevifolia Rottb.

Rhizome—used by the Malays for poulticing sore legs.

Throughout India.

K. monocephala Rottb.

S.–*Musta, Nirvisha*; H. & B.–*Nirbishi*; Bo. & Marathi–*Mustu*; Mal.–*Pimottenga*.

Root—antid. to poisons, refrig., used in fevers.

Throughout India.

K. triceps Rottb.

S.–*Apavisha, Nirvisha*; H. & B.–*Nirbisi*; Bo. & Marathi–*Mustu*.

Decoct. of roots—used to relieve thirst in fevers and diabetes.

Oil boiled with the roots—used to relieve pruritus of the skin.

Roots yield an oil which is used to promote action of liver and relieve pruritus (Kirtikar & Basu, IV, 2634).

N.W. India, Sind, Rajputana, Gujarat, Deccan, Konkan and S. Mahrata Country.

LACTUCA (*Compositae*)

L. heyneana DC.; see **L. runcinata** DC.

L. remotiflora DC.

Marathi–*Undirakani*; Gujarati–*Pathardi*.

Plant—used as subst. for Taraxacum.

Banda, Sind and Deccan.

L. runcinata DC.

Marathi–*Undirachakan*.

Plant—used as subst. for Taraxacum.

Punjab, Upper Gangetic Plain, Sind, Deccan and most plains of Madras State.

L. sativa Linn.

As, 0·023 mg. in 100 g. plant (*C.R. Acad. Sci., Paris*, 1912, 893; *Chem. Zbl.*, 1912, I, 1730); fresh plant contains 0·0038% and dry plant 0·071% oxalic acid (*Chin. J. Physiol.*, 1938, 209; *Chem. Abstr.*, 1938, 9318); contains lactucopicrin (*Bot. Arch.*, 1940, 516; *Chem. Zbl.*, 1940, 1051; *Chem. Abstr.*, 1942, 5615).

The garden lettuce, cultivated throughout India.

L. scariola Linn.; see **L. serriola** Linn.

L. serriola Linn. syn. *L. scariola* Linn.

B. & H.–*Kahu, Salad*; Tam.–*Salattu*; Tel.–*Kavu*; P.–*Kahu*.

Decoct. of seeds—used as demulc.

Plant—cooling, sedative, diur., diaphor., antisp., hypnotic, expect., useful in the treatment of the coughs in phthisis, broncht., asthma and pertussis.

Grain contains alk., bitter substance lactucin (*Bull. imp. Inst., Lond.*, 1919, 37; *Pharm. J.*, 1904, 186; 1905, 548; *Analyst*, 1919 170; *J. Indian chem. Soc.*, 1945, 127); fresh plant contains 0·0019 and dry plant 0·071% oxalic acid (*Chin. J. Physiol.*, 1938, 209; *Chem. Abstr.*, 1938, 9318); lactucopicrin detected (*Bot. Arch.*, 1940, 516; *Chem. Zbl.*, 1940, 1051; *Chem. Abstr.*, 1942, 5615).*

W. Himalayas, 6,000-12,000 ft.

LAGENANDRA (*Araceae*)

L. ovata (Linn.) Thw.; see **L. toxicaria** Dalz.

L. toxicaria Dalz.

Bo.–*Rukh-alu*; Konkan–*Valsanabh*.

Plant—very poisonous, remedy for itch, insecticidal.

From the Konkan to N. Kanara, Mysore, Coorg, Cochin and Travancore.

LAGENARIA (*Cucurbitaceae*)

L. siceraria Standl. syn. *L. vulgaris* Seringe

S.–*Alabu*; Assam–*Bogalao*; H.–*Kashiphal, Kadutumbi, Kaddu*; B.–*Kodula*; P.–*Lauki*; Bo.–*Kadubhopla*; Tam.–*Shorakkai*; Tel.–*Sorakaya*.

Pulp—emetic, purg., applied to the soles in burning of the feet.

Decoct. of leaves—mixed with sugar given in jaundice.

Saponin, fatty oil (*Arch. Pharm., Berl.*, 1886, 863; *Kew Bull.*, 1909, 397).

Said to be indigenous to India. Cultivated throughout India.

L. vulgaris Seringe; see **L. siceraria** Standl.

LAGERSTROEMIA (*Lythraceae*)

L. flos-reginae Retz.; see **L. speciosa** (Linn.) Pers.

L. indica Linn.

B. & H.–*Phurush*; Bo.–*Dhayti*; Tam.–*Tindiyam*; Tel.–*Chinagoranta*.

Bark, leaves and flowers—considered hydragogue and drastic purg.

Bark—stim., febge.

Throughout India, common in gardens.

L. speciosa (Linn.) Pers.

S.–*Arjuna*; Assam, H. & B.–*Jarul*; Bo.–*Taman*; Tam.–*Kodali*; Tel.–*Varagogu*; Mal.–*Chemmaruta*.

Seeds—narcotic.

Bark and leaves—purg.

Root—astrin., stim., febge.

Fruit—used as local application for aphthae of the mouth.

All parts of the plant especially old leaves and ripe fruit contain hypoglycemic principle having activity equivalent to 6-7·7 units of insulin (*Acta med. philipp.*, 1941, 99; *Chem. Abstr.*, 1942, 560).*

Assam, Chittagong, Chota Nagpur, foot of the W. and E. Ghats up to 3,000 ft.

LAGGERA (*Compositae*)

L. alata Schultz-Bip.

Herb—used in Madagascar as a disinfectant.

Tropical Himalayas, between 1,000-5,000 ft., from Simla eastwards to Sikkim, and southwards in hilly districts, ascending to 6,000 ft. in the Nilgiris.

LALLEMANTIA (*Labiatae*)

L. royleana Benth.

H.–*Tukhmlealanga*; Bo.–*Tukhmibalangu*; Kash.–*Tukhmibalungu*; P.–*Tukhmmalanga*.

Seeds—cooling, sedative, used in flatulence, constip.*

Baluchistan, Punjab plains and hills.

LAMARCKIA (*Gramineae*)

L. aurea Moench

HCN-glucd. (*J. Pharm. Chim., Paris*, 1908, 542).

W. Punjab and Peshawar.

LAMINARIA (*Phaeophyceae*)

L. saccharina Lam.

H.–*Galpar-ka-patta*.

Used as cure for goitre, scrofula and syphilis.

Source of iodine.

Found in all deep seas, and frequently cast up on Indian coasts.

LAMIUM (*Labiatae*)

L. album Linn.

Root—considered astrin., and used as resolv. and vulnerary in Spain.

Kashmir, Punjab, Kumaon and Hazara.

LAMPRACHAENIUM (*Compositae*)

L. microcephalum Benth.

S.–*Ajadandi*; Bo.–*Bramhadandi*.

Plant—used as arom. bitter.

Mahabaleshwar, S. Mahrata Country and Mysore.

LANNEA (*Anacardiaceae*)

L. grandis (Dennst.) Engl. syn. *Odina woodier* Roxb.

B.–*Jiol*; Bo.–*Moja*; H.–*Jingan*; Garhwal–*Kalmina*; Mal.–*Oti*; P.–*Kimlu*; S.–*Jingini*; Tam.–*Odi*; Tel.–*Gumpena*.

Bark—astrin., used as a lotion in impetigenous eruptions, leprous ulcers and obstinate ulcers.

Leaves—boiled and applied for local swellings and pains of body.

Decoct. of bark—used for toothache (*Pharm. J.*, 1892, 1073; *Arch. Pharm., Berl.*, 1912, 320).

Common in deciduous forests throughout India, in the sub-Himalayan tract extending to the Indus and ascending to 4,000 ft. in the outer hills.

LANSIUM (*Meliaceae*)

L. domesticum Jack

Fruit peels contain lansinic acid (tox., heart poison) 6% (*Meded. Pl-Tuin, Batavia*, 1899, 80, 121); fruit contains vitamin C (*Philipp. J. Sci.*, 1934, 379); seeds contain an alk. and 1% resin (*Rev. filip. Med.*, 1938, 9; *Chem. Abstr.*, 1938, 3088); resin checks diar., relieves intestinal spasm and contracts rabbit intestine *in vitro* (*Rev. filip. Med.*, 1940, 143; *Chem. Abstr.*, 1940, 7007).

Widely cultivated in India.

LANTANA (*Verbenaceae*)

L. aculeata Linn.

This is considered by some a variety and by others a synonym of *L. camara* Linn.

L. camara Linn.

Bo.–*Ghaneri*; Kan.–*Hesike*; Tel.–*Pulikampa.*; Mal.–*Arippu*.

Plant—in Guiana and La Reunion considered vulnerary, diaphor., carmin. and antisp.

Decoct.—given in tetanus, rheumatism and malaria, tonic, much used in atoxy of abdominal viscera.

Essen. oil (*Ber. Schimmel u. Co., Lpz.*, 1906, Oct., 77; *Arch. Pharm., Berl.*, 1914, 252; *Perfum. essent. Oil Rec.*, 1922, 173; 1925, 9; *Bull. imp. Inst., Lond.*, 1934, 195, 253; *Chem. Zbl.*, 1934, II, 2013); essen. oil containing camerene, isocamerene and micranene (*J. chem. Soc. Japan*, 1935, 1184; *Chem. Abstr.*, 1936, 240); leaves during flowering and seeding stages yield 0·31-0·68% lantanine; two grams dose to a sheep caused photosensitization and severe icterus when exposed to direct sunlight (*Onderstepoort J. vet. Sci.*, 1943, 197; *Chem. Abstr.*, 1944, 6297); lantadene *Onderstepoort J. vet. Sci.*, 1948, 233; *Chem. Abstr.*, 1948, 9086).

Completely naturalized in many parts of India. A native of Tropical America.

L. indica Roxb.
Ajmere & Marathi–*Ghaneri*; Gujarati–*Ghanidalia*; Tam.–*Unni*; Mal.–*Arippu*.
Leaves—used as a cure for snake-bite.
Throughout India and Baluchistan.

LAPORTEA (*Urticaceae*)

L. crenulata Gaud.
H.–*Utigun*; B.–*Chorpata*; Assam–*Sirnat*; Mal.–*Anachoriyanam*; Tam.–*Ottarbala*.
Seeds—used in the same way as coriander.
Juice of root—used in long-standing fevers.
Plant—poisonous.
(*Pharm. J. Trans.*, 1889, 993).
Tropical Himalayas from Sikkim eastwards, Assam, Khasia Hills, W. Ghats of Madras State at 1,000-5,000 ft. and Rampa Hills at 2,500 ft.

LASIA (*Araceae*)

L. aculeata Lour.
B.–*Kantakachu*; Tel.–*Kantakachoramu*, *Mulasari*.
Root—remedy for affections of the throat.
Leaves and roots—remedy for piles.
Petioles—ground and mixed with water given to drink to cattle affected with throat disease.
From tropical Sikkim Himalayas, Assam, Bengal and southwards to Ceylon.

L. heterophylla Schott; see **L. aculeata** Lour.

L. spinosa Thw.; see **L. aculeata** Lour.

LASIOSIPHON (*Thymelaeaceae*)

L. eriocephalus Dcne.
Bo.–*Rametha*; Kan. & Marathi–*Rami*; Mal.–*Nanja*; Tam.–*Malaiviralan*.
Bark—fish poison.
Plant—vesic.
Leaves—applied to swellings and contusions.
Resin from the bark (Dymock, Warden & Hooper, III, 225).
W. Ghats of the Bombay and Madras States, ascending to 7,000 ft. in the Nilgiris.

LATHYRUS (*Leguminosae*)

L. aphaca Linn.
H. & B.–*Jangli-matar*; P.–*Rawan*, *Rawari*.
Ripe seeds—said to be narcotic.
Flowers—resolv.
N.W. Frontier Province, Punjab, Uttar Pradesh, Bengal and Madhya Bharat, ascending to 7,000 ft. on the W. Himalayas.

L. pratensis Linn.
Seeds—used as resolv. in Spain.
W. Himalayas, 6,000-8,000 ft.

L. sativus Linn.
S.–*Sandika*, *Triputi*; H. & B.–*Khesari*; Marathi–*Lakh*; P.–*Kisari*.
Oil from seeds—powerful and dangerous cath.
Seeds contain a poisonous principle probably an acid salt of phytic acid (*C.R. Acad. Sci., Paris*, 1921, 252, 1142, 1202; *Bull. Sci. pharm.*, 1923, 604; *J. Pharmacol.*, 1919, 359; 1929, 43).*
Cultivated in many parts of India up to 4,000 ft. in the Himalayas.

LAUNAEA (*Compositae*)

L. aspleniifolia Hook f.
B.–*Tikchana*.
Root—in combination with other drugs given as a lactag.
Plains of the Punjab and Upper Ganges, Bengal, southwards to the Circars and the Andamans.

L. chondrilloides Hook. f.
Plant—lactag.
Sind, Punjab.

L. glomerata Hook. f.
Quetta—*Alko*.
Decoct. of plant—mixed with some wheat meal into a poultice applied to the eyes to cure eyeache.
Kathiawar, Cutch, Sind, Mt. Abu, Punjab and Baluchistan.

L. nudicaulis Hook. f.
P.–*Batthal*, *Dudhlak*.
Leaves—applied to the head of suffering children as a cure for fever.
More or less throughout the plains of India.

L. pinnatifida Cass.
Bo.–*Pathri*; Marathi & Gujarati–*Bhonpatri*; H.–*Bankau*.
Plant—given as lactag., used as subst. for Taraxacum.
Juice—used as soporific for children and applied in rheum. affections.
Sandy coasts of India.

LAURUS (*Lauraceae*)

L. nobilis Linn.
Ind. Baz.–*Hab-el-ghar*.

Berries—emmen., used in diar., leucor. and dropsy; used in Europe to promote miscarriages (*Pharm. J.*, 1910, 52).

Essen. oil (*J. chem. Soc.*, 1864, 1; *Ber. Schimmel u. Co., Lpz.*, 1906, April, 45; 1919, 91; *J. Soc. chem. Ind., Lond.*, 1930, 141T).*

S. Europe. Planted in Indian gardens.

LAVANDULA (*Labiatae*)

L. bipinnata O. Ktze. syn. *L. burmani* Benth.

Gujarati—*Sarpnocharo*.

Plant—said to be used in medicine, antid. to snake poison.

Essen. oil (*Ber. Schimmel u. Co., Lpz* , 1913, Oct., 110).

Chota Nagpur, Mt. Abu, Jubbulpore, Konkan, Khandesh and Deccan.

L. burmani Benth.; see **L. bipinnata** O. Ktze.

L. stoechas Linn.

H.–*Dharu*; Bo.–*Ustukhndus*.

Used as resolv., antiphl., carmin.

Essen. oil (*Ber. Schimmel u. Co., Lpz.*, 1926, 67); herb yields essen. oil 0·385% (*Perfum. essent. Oil Rec.*, 1932, 411; *Ber. Schimmel u. Co., Lpz.*, 1933, 35).

Canaries, Portugal, and eastwards throughout the Mediterranean region to Constantinople and Asia Minor.

LAWSONIA (*Lythraceae*)

L. alba Lam.; see **L. inermis** Linn.

L. inermis Linn. syn. *L. alba* Lam.

S.–*Mendika*; H.–*Hena, Mehndi*; B.–*Mehedi, Mendi*; Bo.–*Mendi*; Mal.–*Mayilanji*; Tam.–*Marudondri*; Tel.–*Gorinta*.

Bark—given in jaundice and enlargement of the spleen, in calculous affections, as alter. in skin diseases and leprosy.

Leaves—external application in headache, rubbed over the soles of the feet in the burning of feet.

Decoct. of leaves—used as astrin. gargle in relaxed sore throat.

Leaf juice—mixed with water and sugar given as a remedy for spermatorrhoea.

Oil and essence—rubbed over the body to keep the body cool.

Flowers—refrig., soporific.

Leaves contain glucd., colouring matter (Wehmer, II, 816; *Pharm. J.*, 1908, 781; *Liebigs Ann.*, 1900, 845; *Apothekerztg, Berl.*, 1923, 541), hennotannic acid (*Drugg. Circ.*, 1921, 142; U.S.D., 1502); the colouring matter lawsone is identical with 2-hydroxy-α-naphthoquinone (*J. Indian chem. Soc.*, 1933, 577).*

Cultivated and naturalized all over India.

LEEA (*Vitaceae*)

L. aequata Linn.

S. & H.–*Kakajangha*; B.–*Kakjangha*; Marathi–*Kanga*; Mal.–*Kakanasika*; Tel.–*Surapadi*.

Tubers and stems—astrin., mucilaginous.

Sikkim Himalayas, Assam, East Bengal, Sylhet and the Andamans.

L. crispa Linn.

B.–*Banchalita*; Mal.–*Nalugu, Nellu*.

Tubers—used as a remedy for guineaworm.

Leaves—bruised and applied to wounds.

Konkan, N. Kanara, W. Ghats in the Nilgiris and Malabar, W. tropical Himalayas, Oudh.

L. hirta Roxb.; see **L. aequata** Linn.

L. indica Merrill

H. & B.–*Kurkurjiwah*; Marathi–*Karkani*; S.–*Karkatajihva*; Mal.–*Manipiranta*; Tam.–*Ottannalam*; Tel.–*Ankadora*.

Root—used in diar., dysen. and as sudorific.

Decoct. of root—given in colic, cooling and relieves thirst.

Leaves—roasted and applied to the head in vertigo.

Leaves contain amorphous froth forming acid (*Bull. Inst. bot. Buitenz.*, 1902, 18).

Throughout India and the Andamans.

L. macrophylla Roxb. ex Hornem.

S.–*Dholasamudrika*; H. & B.–*Dholsamudra*; Bo.–*Dinda*.

Root—astrin., used as remedy for ringworm and in cure of guineaworm; pounded and applied to obstinate sores to promote cicatrization; applied externally to allay pain.

Throughout the hotter parts of India and Assam.

L. robusta Roxb.

Nep.–*Galeni*; Santh.–*Haramada*; Uriya–*Nunonunia*; Tel.–*Peddapayagillaku*.

Root—applied externally as anodyne, internally given to cattle for diar.

Konkan, N. Kanara, W. Ghats in Malabar and the W. Nilgiris up to 3,000 ft., E. Ghats, hills of N. Circars to the Godavari up to 3,000 ft., Khasia Hills, Nepal and the Andamans.

Leaves—employed as external cooling application to alleviate the pains of wounds and bruises.

Temperate Himalayas, from Garhwal to Sikkim, 5,000-10,000 ft., and Khasia Hills.

L. wallichianum Schult. f.
H.–*Findora.*

Dried bulb scales—demulc., used like salep in pectoral complaints.

W. Himalayas, Nepal and Kumaon, 3,000-4,000 ft.

LIMNANTHEMUM (*Gentianaceae*)

L. cristatum Griseb.; see **Nymphoides indicum** Kuntze

L. nymphaeoides Hoffm. & Link; see **Nymphoides peltatum** Kuntze

LIMNOPHILA (*Scrophulariaceae*)

L. gratioloides R. Br.; see **L. indica** (Linn.) Bruce

L. indica (Linn.) Bruce syn. *L. gratioloides* R. Br.
S.–*Ambuja*; H.–*Kuttra*; B.–*Karpur*; Marathi–*Ambuli*; Mal.–*Manganari*.

Plant—considered antisep., made into a liniment with coconut oil used in elephantiasis.

Juice of plant—rubbed over the body in pestilent fevers, and given internally in dysen., combined with ginger, cumin and other aromatics.

Essen. oil (*Philipp. J. Sci.*, 1911, 345; *Ber. Schimmel u. Co., Lpz.*, 1912, April, 83).

Throughout India in wet places and Baluchistan.

L. gratissima Blume
Vern. names as of *L. indica*.

Juice of the plant—antisep., used as a cooling medicine in fever, and given to women who are nursing, when the milk is sour.

Western Peninsula.

L. roxburghii G. Don

Infusion of leaves—used as diur., tonic, and stomch. in the Philippine Islands.

More or less throughout India.

LIMONIA (*Rutaceae*)

L. acidissima W. & A. (not of Linn.); see **L. crenulata** Roxb.

L. crenulata Roxb.
H.–*Beli*; Bo.–*Ranlimbu*; Kan.–*Kadubela*; Mal.–*Serukattunarakan*; Marathi–*Tondsha*; Tam.–*Kurangu*; Tel.–*Tottelaga*.

Root—purg., sudorific, used for the cure of colic and cardialgia.

Dried fruit—antid. to various poisons, tonic, diminishes intestinal fermentation, resists the contagion of smallpox, malignant and pestilent fevers.

Leaves—considered remedy for epilepsy.

Western and South India, Punjab, N.W. Himalayas, Simla, Kumaon, Bihar, Bengal and Assam.

LINARIA (*Scrophulariaceae*)

L. cymbalaria Mill.; see **Cymbalaria muralis** Gaertn. Mey. & Schreb.

L. minor Desf.

HCN in young branches (*C.R. Soc. Biol., Paris*, 1918, 621; *Pharm. Acta Helvet.*, 1926, 167).

Punjab plains.

L. ramosissima Wall.; see **Kickxia ramosissima** (Wall.) Janchen

LINDENBERGIA (*Scrophulariaceae*)

L. indica (Linn.) O. Kuntze syn. *L. urticaefolia* Lehm.
Bo.–*Gazdar*; Gujarati–*Bhintachati*; Marathi–*Dhol*.

Juice—given in chr. broncht. and mixed with that of coriander applied to skin eruptions.

Throughout India, Baluchistan and Waziristan.

L. urticaefolia Lehm.; see **L. indica** (Linn.) O. Kuntze

LINDERA (*Lauraceae*)

L. neesiana Benth.
Nep.–*Siltimur*.

Plant—arom., carmin., yields excellent sassafras.

Temperate Himalayas from Nepal to Sikkim, 6,000-8,000 ft.

LINUM (*Linaceae*)

L. perenne Linn.

Seeds—considered emol. in Europe and China.

N.W. Himalayas.

L. strictum Linn.
P.–*Basaut*.

Seeds—used as emol. in Spain.

Punjab and N.W. Himalayas.

L. usitatissimum Linn.
S. & Tel.–*Atasi*; H.–*Alsi*; B.–*Masina, Tisi*; Bo.–*Alasi*; Tam.–*Alshi*; Mal.–*Cheruchanavittintevitta*.

Dried ripe seeds—used as demulc. and in form of poultices; as poultice useful for gouty and rheum. swellings; used internally for gonor. and irritation of the genito-urinary system.

Bark and leaves—used in gonor.

Flowers—nervine and cardiac tonic.

Oil—mixed with limewater used as application to burns.

Seeds contain HCN-glucd. linamarin (*Chem. Zbl.*, 1907, I, 1440); 0·0812 mg. arsenic oxide in 1 kg. seeds (*Pharm. Weekbl.*, 1921, 1482; *Chem. Zbl.*, 1922, II, 113); flowers with immature seeds contain 0·69% HCN; one-half lb. of flowers will cause death of bullocks (*Indian J. vet. Sci.*, 1939, 61; *Chem. Abstr.*, 1940, 2071); seeds contain about 30 to 40% of fixed oil, 6% mucilage, 25% proteins, together with wax, resin, sugar, phosphates and a small quantity of the glycoside, linamarin (B.P.C., 474).

Cultivated throughout India up to 6,000 ft.

LIPPIA (*Verbenaceae*)

L. nodiflora Mich.

S.–*Vashira*; P.–*Bukan*; H.–*Bhuiokra*; Bo.–*Ratolia*; Tam.–*Podutalei*; Tel.–*Bokkena*; Mal.–*Kattuttippali*.

Plant—febge., diur., made into a poultice used as maturant for boils.

Infusion of leaves and tender stalks—given to children in indign., and to women after delivery.

Bitter substance isolated from the plant (*Indian J. med. Res.*, 1945, 158).

Throughout India and Baluchistan.

LIQUIDAMBAR (*Hamamelidaceae*)

L. orientalis Miller

S.–*Silhaka*; H., B. & Bo.–*Silaras*; M.–*Meri-arishippal*.

Balsam—stimulating expect., antisep.

Amorphous substance storesin, cinnamic acid (*Ber. dtsch. chem. Ges.*, 1890, 155; *Arch. Pharm., Berl.*, 1901, 506; *Chem. & Drugg.*, 1912, 412; U.S.D., 1116).

South-western part of Asia Minor.

LITCHI (*Sapindaceae*)

L. chinensis Sonner. syn. *Nephelium litchi* Camb.

B., Bo. & H.–*Lichi*; Tam.–*Ilichi*.

Fruit—tonic.

Leaves—used as a cure for bites of animals.

(*Fmr's Bull. U.S. Dep. Agric.*, 28; *J. Amer. chem. Soc.*, 1918, 817).

Widely cultivated in India. Indigenous to China.

LITHOSPERMUM (*Boraginaceae*)

L. arvense Linn.

Infusion of leaves—used as a sedative in Spain.

Alk. cynoglossine [Kobert, Lehrbuch der Inotoxikationen, 1906, ii(2), 1186; Watt & Brayer-Brandwijk].

Kashmir, Peshawar and W. Tibet.

L. officinale Linn.

H.–*Lubis firmun.*

Seeds—used as diur., and lithotriptic in Europe.

Infusion of leaves—used as a sedative in Spain.

(*Arch. Pharm., Berl.*, 1858, 278).

Kashmir.

LITSEA (*Lauraceae*)

L. chinensis Lam. syn. *L. sebifera* Pers.

H.–*Garbijaur*; B.–*Kukurchita*; Bo.–*Maida-lakadi*; P.–*Medalakri*; S.–*Vasa*; Tam.–*Ama*; Tel.–*Naramamidi*.

Bark—demulc., astrin., used in diar. and dysen., aphrodis., anodyne, local antid. to bites of venomous animals; freshly ground used either dry or triturated in water or milk, as emol. application to bruises and as styptic dressing for wounds.

Oil from berries–used in rheumatism.

Leaves—mucilaginous, considered antisp. and emol.

Alk. laurotetanine (Dymock, Warden & Hooper, III, 212; *J. prakt. Chem.*, 1867, 424; *Arch. Pharm., Berl.*, 1905, 625).*

Throughout the hotter parts of India.

L. citrata Bl.

Toxic alk. laurotetanine; essen. oil 0·81% (Wehmer, I, 370; *Bull. Jard. bot. Buitenz.*, 1921, 180); bark contains alk. N-methyl laurotetanine (*Ber. dtsch. chem. Ges.*, 1933, 1344; *Chem. Zbl.*, 1933, II, 2397).

E. Himalayas, from Sikkim to Mishmi, 5,000-9,000 ft. and Khasia Hills, 5,000-6,000 ft.

L. polyantha Juss.

H.–*Meda*; B.–*Barakukurchita*; Marathi–*Ranamba*; P.–*Rian*; S.–*Gajapippali*; Tam.–*Pisinbattu*; Tel.–*Nara*.

Bark—astrin., used in diar., stomch., stim., after being bruised, applied fresh or dry to contusions; powdered and applied to the body for pains arising from blows or bruises or from hard work, also applied to fractures in animals.

Seeds contain 21·2% fatty oil and kernels 33% (*Pharm. J.*, 1913, 369).

Along the foot of the Himalayas, up to 3,000 ft., to Assam and the Satpura Range, Coromandel.

L. sebifera Pers.; see **L. chinensis** Lam.

L. stocksii Hook. f.

Marathi–*Pisi*.

Cold infusion of leaves—mucilaginous, used in irritation of bladder and urethra.

Oil from seeds—used as application to sprains, bruises and itch.

Essen. oil, alk. (Dymock, Warden & Hooper, III, 213).

Western Peninsula.

LOBELIA (*Lobeliaceae*)

L. excelsa Lesch.

Leaves—smoked in the same way as tobacco.

Milk of the plant—extremely acrid.

W. Ghats of S. India, the Nilgiris, Pulney Hills and hills of Travancore above 6,000 ft.

L. nicotianaefolia Heyne

B. & H.–*Nala*; Bo.–*Dhaval*; Tam.–*Kattuppgaiyilai*; Tel.–*Adavipogaku*; Mal.–*Kattupukayila*; S.–*Devanala*.

Infusion of leaves—antisp.

Leaves and seeds—acrid, poisonous.

Root—in scorpion-sting.

Alk. lobeline (*Pharm. Z. Ruszland*, 1886, 353).

W. Ghats from Bombay to Travancore at 3,000-7,000 ft., Konkan, Matheran, Deccan, S. Mahrata Country, the Nilgiris, Malabar and Mysore.

LOBULARIA (*Cruciferae*)

L. maritima Desv. syn. *Alyssum maritimum* Lam.

Plant—commonly used in Spain as antiscor. and diur. and in Barcelona highly esteemed as astrin. for gonor.

Cultivated in gardens in North-western India.

LOCHNERA (*Apocynaceae*)

L. pusilla (Murr.) K. Schum.; see **Vinca pusilla** Murr.

L. rosea (Linn.) Reichb.; see **Vinca rosea** Linn.

LODOICEA (*Palmae*)

L. maldivica Pers. syn. *L. seychellarum* Labill.

S.–*Ubdie-narikaylum*; H.–*Daryakanaryal*; Bo.–*Jeharinaryal*; Gujarati–*Daryanunariyal*; Mal.–*Katattenna*; Tam. *Kadattengai*; Tel.–*Samudraputenkaya*.

Fruit—used as tonic, preservative, alexipharmic, febge., used to check diar. and vomiting especially in cholera, mixed with the root of Nux vomica given to children for colic; the water or soft kernel considered antibil. and antacid when taken after meals.

Cultivated in India.

L. seychellarum Labill.; see **L. maldivica** Pers.

LOLIUM (*Gramineae*)

L. temulentum Linn.

H.–*Machni*; English–*Darnel*.

Darnel meal—considered a sedative poultice and believed to cure freckles, cattle poison.

Toxic alk. temuline (*Arch. exp. Path. Pharmak.*, 1892, 203); glucd. (*C.R. Acad. Sci., Paris*, 1902, 134, 1173; 1903, 136, 1013; *Indian med. Gaz.*, 1946, 294).*

Upper Gangetic Plain, Punjab, Sind and W. Himalayas, ascending to 4,000-6,000 ft.

LONICERA (*Caprifoliaceae*)

L. glauca Hk. f. & Th.

H. & P.–*Shea, Sheva.*

Seeds—given to horses for colic.

Leaves and flowers—considered in Indo-China an excellent remedy in the treatment of venereal diseases.

N.W. Himalayas, 12,000-16,000 ft., Garhwal and Kumaon.

LOPHATHERUM (*Gramineae*)

L. gracile Brongn.

Leaves—considered as antifebrile and diur. in China.

Tropical Himalayas from Sikkim eastwards, Khasia and Naga Hills, up to 4,000 ft.

LORANTHUS (*Loranthaceae*)

L. elasticus Desr.; see **Dendrophthoe elastica** (Desr.) Danser

L. falcatus Linn. f.; see **Dendrophthoe falcata** (Linn. f.) Ettingshausen

L. longiflorus Desr.; see **Dendrophthoe falcata** (Linn. f.) Ettingshausen

L. pentandrus Linn.; see **Dendrophthoe pentandra** (Linn.) Miq.

LOTUS (*Leguminosae*)

L. corniculatus Linn.

HCN-glucd. (*Chem. News*, 1911, 275; *Pharm. J.*, 1911, 881; *Proc. roy. Soc.*, 1913, 262).

W. Himalayas, as far east as Nepal, principally in the temperate zone up to 10,000 ft., but descending into the plains.

LOXOCOCCUS (*Palmae*)

L. rupicola Wendl. & Drude

Ceylon—*Dotalu*.

Seed—used for mastication with betel just like arecanut.

Endemic in Ceylon.

LUFFA (*Cucurbitaceae*)

L. acutangula Roxb.

S.–*Koshataki*; H.–*Jinga, Torai*; Bo.–*Turai*; B.–*Jhinga*; Tam.–*Pikunkai*; Tel.–*Burkai*; Mal.–*Puichenggah*.

Seeds—emetic, purg.

Juice of fresh leaves—dropped into the eyes in granular conjunctivitis.

Pounded leaves—applied locally to splenitis, haemorrhoids and leprosy.

Bitter substance luffin (*Pharm. J.*, 1890, 997; *J. Soc. chem. Ind., Lond.*, 1898, 991; 1910, 1428); seeds contain 20% of a saponin glycoside, enzyme and a fixed oil; oil causes salivation, vomiting and purging in dogs (*Indian J. med. Res.*, 1943, 63; *Chem. Abstr.*, 1944, 5003).

Cultivated throughout the greater part of India.

L. acutangula (Linn.) Roxb. var. **amara** Clarke

S.–*Koshataki*; B.–*Jhinga*; Bo.–*Kadudorka*; H.–*Jhimani*; Mal.–*Athanga*; Tam.–*Peyppirkam*; Tel.–*Verribira*.

Plant—laxt., purg., useful in skin diseases and asthma, bitter tonic, diur., used in splenic enlargements.

Fruit and seed—emetic, cath.

Kernel of seeds—used in dysen.

Seeds contain fixed oil.

Throughout India, especially the Western Peninsula.

L. aegyptiaca Mill. ex Hook. f.; see **L. cylindrica** (Linn.) M. Roem.

L. cylindrica (Linn.) M. Roem. syn. *L. aegyptiaca* Mill. ex Hook. f.

S.–*Rajakoshataki*; H.–*Ghiatarui*; B.–*Dhundul*; Bo.–*Ghosali*; Tam.–*Pikku*; Tel.–*Guttibira*; M.–*Tureippirku*.

Seeds—emetic, cath.

Saponin (*Ber. dtsch. pharm. Ges.*, 1904, 175, 180); contains a neutral crystalline bitter principle; minimum lethal dose for frogs 1·4 mg./kg. and for cats 10 mg./kg.; death by respiratory failure (*Rev. filip. Med.*, 1939, 168; *Chem. Abstr.*, 1939, 5593); a bitter saponin, strongly haemolytic, highly toxic to fish and frog (*Rev. filip. Med.*, 1941, 49, 214; *Chem. Abstr.*, 1941, 4915; *Chem. Abstr.*, 1941, 7652).

Cultivated throughout the greater part of India.

L. echinata Roxb.

S.–*Koshaphala*; H.–*Ghagarabela*; B.–*Deyatada*; Bo.–*Kukarvel*; Tel.–*Panibira*; Kan.–*Devadangar*.

Plant—emetic, anthelm., in jaundice, phthisis, hiccough.

Fruit—used as remedy for dropsy, purg., in form of infusion given in colic and in cholera after each stool.

Amorph. bitter substance (*Pharm. J.*, 1890, 997).

Sind, Gujarat, Bihar, Dehra Dun, N. Oudh, Bundelkhand and Bengal.

L. pentandra Roxb.; see **L. cylindrica** (Linn.) M. Roem.

LUISIA (*Orchidaceae*)

L. tenuifolia Blume

Plant—emol., applied as poultice to boils, abscesses and tumours.

Western Peninsula.

LUPINUS (*Leguminosae*)

L. albus Linn.

H.–*Turmas*; B.–*Turmuz*.

Used as anthelm., diur., pectoral and tonic.

Alks. lupinine, lupinidine, lupamine (*Ber. dtsch. chem. Ges.*, 1904, 2351; *Arch. Pharm., Berl.*, 1892, 61; 1897, 263; *Bull. Soc. Chim. biol., Paris*, 1932, 758; *Chem. Zbl.*, 1932, II, 2273); decoct. of seeds increases the sugar tolerance in diabetic patients (*Folia med. Napoli.*, 1937, 729); extracts from seed reduces blood pressure of rabbits (*Arch. Farmacol. sper.*, 1940, 113; *Chem. Abstr.*, 1941, 1511); seeds contain alk. lupanine; antimalarial action disproved (*Trib. farm.*, 1944, 1; *Chem. Abstr.*, 1944, 4101).

A native of Levant, extensively cultivated in S. Europe, Egypt, and Asia south of the Caucasus; said to be cultivated in some parts of India.

LUVUNGA (*Rutaceae*)

L. scandens Buch.-Ham.

S.–*Lavangalata*; B.–*Labangaphal*.

Berries—used in preparing a perfumed medicinal oil.

Root and fruit—used in scorpion-sting.

Four crystalline neutral compounds isolated from mature fruits (*J. Indian chem. Soc.*, 1944, 181).

Eastern Bengal, Assam, Khasia Hills and Chittagong.

LUZULA (*Juncaceae*)

L. campestris DC.

Rhizome—diur.

Temperate and alpine Himalayas, 10,000-14,000 ft., from Kashmir eastwards, Khasia Hills, Nilgiris and the Anamalai Hills, 5,000-7,000 ft.

LYCHNIS (*Caryophyllaceae*)

L. coronaria Desr.

Extract or decoct. of the root—used in Spain for infraction of the lymph glands of the mesentery, and for diseases of the lungs and liver.

Abundant in Kashmir: Gadsar, roadsides and dry places; Dachigan Rukh; below Gulmarg and wooded hillside at 8,000 ft.

LYCIUM (*Solanaceae*)

L. barbarum Linn.

Delhi–*Chirchitta, Chiritta*; P.–*Ganger, Kangu*; Marathi–*Gangro*; Urdu–*Chirchitta.*

Berries—aphrodis.

Young leaves contain HCN (*Pharm. Acta Helvet.*, 1926, 167).

Kathiawar, Sind, Baluchistan and the Punjab.

L. ruthenicum Murr.

Ladakh—*Khichar.*

Plant—used as an ointment for blindness in camels.

Baluchistan.

LYCOPERDON (*Lycoperdaceae*)

L. gemmatum Batsch

Spores—officinal in the Punjab and considered warm (Stewart).

Punjab, Himalayas up to 11, 500 ft., and Ladakh 13,000 ft.

LYCOPERSICON (*Solanaceae*)

L. esculentum Mill. syn. *Solanum lycopersicum* Linn.

English—*Tomato.*

Fruit contains oxalic acid (*Amer. J. Pharm.*, 1872, 197); narcotine (*Hoppe-Seyl. Z.*, 1932, 105; *Chem. Zbl.*, 1932, I, 834; *Apothekerztg, Berl.*, 1932, 1024; *Chem. Zbl.*, 1932, II, 3106); stem contains rutin (*J. chem. Soc.*, 1933, 1528; *Chem. Zbl.*, 1934, I, 1506) and oxalic acid 0·026% in fresh and 0·642% in dry samples (*Chin. J. Physiol.*, 1938, 209; *Chem. Abstr.*, 1938, 9318); acidity of juice due to citric and malic acids; solanine reported in the herbage and seed but does not occur in juice; fruits rich in vitamins A and C (U.S.D., 1593).

Cultivated and as an escape in India.

LYCOPODIUM (*Lycopodiaceae*)

L. clavatum Linn.

M.–*Bendarli.*

Herb—diur., antisp., in form of a decoct. used in rheumatism and diseases of lungs and kidneys.

Three alks. lycopodine, clavatine and clavatoxine isolated (*Roczn. Chem.*, 1938, 88; *Chem. Abstr.*, 1938, 9092); American plant yields nicotine, lycopodine, alk. L13, L18 and L19; alks. clavatine and clavatoxine not found (*Canad. J. Res.*, 1944, 137; *Chem. Abstr.*, 1945, 586).

Some parts of the Himalayas.

LYCOPUS (*Labiatae*)

L. europaeus Linn.

Kash.–*Gandamgundu, Jalnim*; Ind. Baz.–*Jalnim.*

Plant—used as a cooling drug; in U.S.A. considered a mild narcotic and an astrin., useful in pulmonic and other haemorrhages.

Leaves—used externally as poultice to cleanse foul wounds.

Essen. oil and bitter substance (Wehmer, II, 1078).

W. Himalayas, Kashmir, 1,000-6,000 ft., Punjab plains, up to 7,000 ft.

LYGODIUM (*Polypodiaceae*)

L. flexuosum Sw.=**L. pinnatifidum** Sw.

Mal.–*Vallipanna.*

Plant—used as expect.

Fresh root—boiled with mustard oil useful as local application to carbuncles, externally in rheumatism, sprains, scabies, ulcers, eczema and cut wounds.

Dehra Dun, Kumaon, Shahjahanpur, Gorakhpur, throughout the plain in Bengal up to 5,000 ft., both sides of Madras State up to 4,000 ft.

L. japonicum Sw.

Plant—used as expect. in China.

N. India from Kashmir to Sikkim and Bhutan from 2,000-7,000 ft., western mountains of S. India.

LYONIA (*Ericaceae*)

L. ovalifolia (Wall.) Drude syn. *Pieris ovalifolia* D. Don

H.–*Ayar*; P.–*Arwan*; Bashahr-*Lal-rang, Yerta*; Bhutia–*Piazay*; Garhwal-*Angyar*; Lepcha–*Kangchoir*; Nep.–*Angiar.*

Young leaves and buds—poisonous to goats, used to kill insects, infusion applied in cutaneous diseases.

Toxic substance and romedotoxin (*Arch. Pharm., Berl.*, 1891, 552).

Outer Himalayas, from Kashmir to Sikkim and Bhutan, usually at 3,000-8,000 ft., Khasia Hills between 3,000 and 5,000 ft.

MACARANGA (*Euphorbiaceae*)

M. indica Wight

Kumaon-*Ramalo*; Nep.–*Malata*; Mal-*Puthatamara*; Tam.–*Vuttuttamara.*

Gum—applied to sores.

E. Himalayas, Mishmi and Khasia Hills, Deccan Peninsula, Andaman Islands.

M. peltata Muell.-Arg.

Marathi–*Chandwar*; Bo.–*Chanda*; Kan.–*Upaligi*; Mal.–*Uppila*; Tel.–*Kondatamara*; Tam.–*Vattikanni.*

Gum—powdered and made into a paste, a good application for venereal sores.

Hills of Orissa and the Circars and Western Peninsula.

M. roxburghii Wight; see **M. peltata** Muell.-Arg.

MACHILUS (*Lauraceae*)

M. macrantha Nees

Tam.–*Kollamavu*; Mal.–*Uravu*; Kan.–*Gulimavu*; Coorg—*Kruramavu.*

Bark—used in consumption, asthma and rheumatism.

Leaves—applied to ulcers.

Western Peninsula.

MACROTOMIA (*Boraginaceae*)

M. benthami DC.

P. & Ind. Baz.–*Gaozaban.*

Plant—considered useful in diseases of tongue and throat.

Western Himalayas, from Kashmir to Kumaon, 10,000-13,000 ft.

M. perennis Boiss.

Roots—bruised and applied to eruptions.

Alpine W. Himalayas from Kashmir to Kumaon, 10,000-14,000 ft.

MADHUCA (*Sapotaceae*)

M. butyracea (Roxb.) Macbride syn. *Bassia butyracea* Roxb.

H.–*Phalwara*; Nep.–*Churi*; Dehra Dun–*Chiura*; Kumaon–*Chyura*; Lepcha–*Yelpote.*

Fat—used as ointment in rheumatism, emol. for chapped hands, etc., in winter.

Saponin (*J. Soc. chem. Ind., Lond.*, 1910, 1428; 1912, 98; *Chem. Zbl.*, 1914, 1439); a new sapogenin and bassic acid isolated (*J. chem. Soc.*, 1939, 1124).

Sub-Himalayan tract from Kumaon to Bhutan, 1,000-5,000 ft.

M. indica J. F. Gmel. syn. *M. latifolia* (Roxb.) Macbride; *Bassia latifolia* Roxb.

Bo. & H.–*Mahua*; B.–*Mahwa*; S.–*Madhuka*; Mal.–*Irippa*; Tam.–*Kattiluppai*; Tel.–*Madhukamu.*

Flowers—yield a distilled spirit which is astrin., tonic, appetizing; regarded as cooling, tonic, nutritive, used in coughs in form of a decoct.; dried ones used as a fomentation in cases of orchitis for their sedative effect; fried in *ghee* eaten by persons suffering from piles.

Bark—used in decoct. as astrin., and tonic; fish poison.

Alk., glucosidic saponin in leaves (*Bull. Inst. bot. Buitenz.*, 1902, XIV. 30; *Pharm. J.*, 1910, 141; *Analyst*, 1921, 229; *Arch. Pharm., Berl.*, 1901, 369); seeds contain fatty oil 50-55% (*J. Soc. chem. Ind., Lond.*, 1887, 21; 1933, 116; *Chem. Zbl.*, 1933, 3505; *J. Pharm. Chim., Paris*, 1932, 421; *Chem. Zbl.*, 1933, I, 1702); a new sapogenin and bassic acid isolated (*J. chem. Soc.*, 1939, 1124).

Dehra Dun and Saharanpur Siwaliks, Oudh, Bihar, Chota Nagpur, Orissa, Madhya Pradesh, Madhya Bharat, Gujarat, Konkan, N. Kanara, S. Mahrata Country, N. Circars and Deccan; cultivated and self-sown.

M. latifolia (Roxb.) Macbride; see **M. indica** J. F. Gmel.

M. longifolia (Linn.) Macbride syn. *Bassia longifolia* Linn.

B.–*Mohuva*; Bo.–*Mohwa*; H.–*Mohua*; S.–*Madhuka*; Mal.–*Irippa*; Tam.–*Iluppai*; Tel.–*Uriyippa.*

Bark—in decoct. used as an astrin. and emol., also as a remedy in itch.

Flowers—laxt., stim., anthelm., used in snake-bite, as fish poison.

Oil from seeds—good for skin diseases.

Gummy juice—used in rheumatism.

A poisonous saponin, mowrin, bitter substance (*Ber. dtsch. pharm. Ges.*, 1918, 100; *Biochem. J.*, 1909, 94; *Pharm. J.*, 1909, 364; *Hoppe-Seyl. Z.*, 1919, 31; *J. Indian Inst. Sci.*, 1923, 131); fruits yield essen. oil containing 22·72% ethyl cinnamate (*Indian Soap J.*, 1945, 31; *Chem. Abstr.*, 1948, 3534); mowrin has a digitalis-like action upon the heart and a saponin-like haemolytic effect (U.S.D., 1359).

Forests of W. India from Konkan southwards to Travancore, common in Kanara, Malabar, Mysore, Anamalais and the Circars at low elevations.

M. malabarica (Bedd.) R. N. Parker syn. *Bassia malabarica* Bedd.

Mal.–*Attirippa*; Tam.–*Attilappai*; Kan.–*Nanale.*

Fruits—given in rheumatism, biliousness, consumption, asthma and worm.

Oil from seeds—used in rheumatism and for improvement of the hair.

Flowers—soaked in water used in kidney complaints.*

Western Peninsula.

MAERUA (*Capparidaceae*)

M. arenaria Hook. f. & Th.

Tam.–*Bhumichakkarai*; Tel.–*Morinika*; Gujarati–*Vika.*

Root—alter., tonic and stim.

Punjab, Sind, Gujarat, Deccan, Central and S. India.

MAESA (*Myrsinaceae*)

M. indica Wall.

Kumaon–*Nagapadhera*; Mal.–*Kiriti*; Kan.–*Tanipele*; Garhwal–*Jiundali*; Marathi–*Athi.*

Berries—anthelm.

Root—used in syphilis.

Leaves—used as fish poison.

Throughout India up to 6,000 ft., common in the N.E. Himalayas, E. Bengal, Darjeeling district, Manipur, Kanara and along the Ghats.

MAHONIA (*Berberidaceae*)

M. napaulensis DC. syn. *Berberis nepalensis* Spreng.

Nep.–*Chatri*; P.–*Amudanda, Chiror*; Garhwal–*Haldia*; Jaunsar–*Khoru*.

Berries—considered diur., and demulc. in dysen.

Roots of old plants yield highest amount of alkaloids umbellatine (0·48%) and neprotine (0·02%) (*J. Amer. pharm. Ass.*, 1944, 205; *Chem. Abstr.*, 1944, 5259; *Sci. & Cult.*, 1942, 619; *Chem. Abstr.*, 1942, 7233; 1944, 5259).

Temperate Himalayas, 4,000-8,000 ft., from Garhwal to Bhutan, Khasia Hills, 4,000-5,000 ft., and Nilgiri Hills, 5,000-8,000 ft.

MAJORANA (*Labiatae*)

M. hortensis Moench syn. *Origanum majorana* Linn.

S.–*Maru*; B.–*Murru*; Bo.–*Murwo*; Tam.–*Marru*; Deccan & H.–*Murwa*; Kumaon–*Bantulsi*.

Plant—carmin., expect., tonic to the liver.

Leaves and seeds—astrin., remedy for colic.

Essen. oil from leaves—used for hot fomentations in acute diar.

Essen. oil, bitter substance (*Ber. Schimmel u. Co., Lpz.*, 1926, 70; 1918, 34; *Ber. dtsch. chem. Ges.*, 1907, 596); intravenous injection of 1 cc. per kg. body weight of dogs of a saturated solution of essen. oil in 33% ethyl alcohol increased peristaltic movements of intestine (*C.R. Soc. Biol., Paris*, 1945, 210; *Chem. Abstr.*, 1946, 3527).

Extensively cultivated in India.

MALACHRA (*Malvaceae*)

M. capitata Linn.

Bo.–*Ranbhendi*.

Plant—used as emol., and pectoral in La Reunion.

Naturalized throughout the hotter parts of India.

MALLOTUS (*Euphorbiaceae*)

M. philippinensis Muell.-Arg.

S.–*Rechanaka*; H. & B.–*Kamala, Kamila*; Bo.–*Kamala, Shendri*; Tam.–*Kamala, Kapila*; Tel.–*Sinduri*; Mal.–*Tavitu*; Assam–*Puddum*.

Glands and hairs on the fruit—bitter, anthelm., cath., styptic.

Rottlerin (*Ber. dtsch. chem. Ges.*, 1886, 3109; *Arch. Pharm., Berl.*, 1907, 572; *J. chem. Soc.*, 1925, 2044; 1893, 975; 1895, 230; *J. Indian chem. Soc.*, 1928, 21; *Arch. Pharm., Berl.*, 1933, 97; *Chem. Zbl.*, 1933, I, 2820; *Indian med. Gaz.*, 1947, 66); rottlerin, isorottlerin, a resin of low m.p., a resin of high m.p. and a wax (*Indian J. Pharm.*, 1949, 37; *Chem. Abstr.*, 1949, 8101).

Throughout tropical India, along the foot of the Himalayas from Kashmir eastwards, ascending to 5,000 ft., and all over Bengal.

MALUS (*Rosaceae*)

M. sylvestris Mill. syn. *Pyrus malus* Linn.

B. & H.–*Seb*; Kan.–*Sebu*; S.–*Seba*.

Fruit—eaten to obviate constipation.

Infusion of bark—given in intermittent, remittent and bilious fevers.

Root—anthelm., refrig., hypnotic (Stuart).

Leaves yield glucd., seeds amygdalin (*C.R. Acad. Sci., Paris*, 1924, 775; *Arch. Pharm., Berl.*, 1912, 298); 1% phlorizin (*C.R. Acad. Sci., Paris*, 1924, 775); seeds contain glucd. phlorizin, up to 8% of fresh weight (*Nature, Lond.*, 1947, 100; *Chem. Abstr.*, 1947, 2859).

Cultivated in the Himalayas, the Punjab, Sind, N.W. Frontier Province, Madhya Bharat and the Deccan. Wild in the N.W. Himalayas, ascending to 9,000 ft.

MALVA (*Malvaceae*)

M. parviflora Linn.

H. & P.–*Panirak, Supra*.

Seeds—demulc., used in coughs and ulcers in the bladder.

Plant—used as emol. and pectoral in La Reunion.

N.W. Himalayas up to 5,000 ft., Kashmir, Punjab plains, Sind, Baluchistan, Bombay, Uttar Pradesh, Upper Bengal, the Deccan, Mysore and Madura.

M. rotundifolia Linn.

H. & Bo.–*Khubasi*; Tel.–*Trikalamalli*; Kan.–*Kadukadalegida*.

Seeds—demulc., used in bronchitis, coughs, ulceration of bladder, and haemorrhoids, applied externally in skin diseases.

Leaves—emol., used in piles.

Plant—used as a cooling drug.

Sind, Baluchistan, Waziristan, plains of N. India, ascending to 10,000 ft. and Kumaon.

M. sylvestris Linn.
H.–*Gul-khair*; Bo.–*Khubasi*; Kan.–*Sannabindigegida*; Patna–*Khatmi*; Urdu–*Khubaji*.

Plant—mucilaginous, demulc., emol., cooling, febge., used in affections of the mucous membrane of the pulmonary tract and of urinary bladder, in form of poultice used in external inflam.

Leaves contain tannin (Wehmer, II, 757); leaves contain 0·018% of an active component which stimulates smooth muscles of isolated uterus and intestines (*Biochim. Terap. sper.*, 1942, 149; *Chem. Abstr.*, 1946, 1589).

W. temperate Himalayas from the Punjab to Kumaon, 2,000-8,000 ft. In Bombay, Mysore and Madras, a weed of cultivation.

M. verticillata Linn.
Assam–*Laffa*.

Root—used in Indo-China to produce vomiting in whooping cough.

Leaves and stems—considered digest., given to women in the advanced stage of pregnancy.

Ash of dried leaves—employed in the preparation of a drink given in scabies.

Temperate Himalayas up to 12,000 ft.

MALVASTRUM (*Malvaceae*)

M. coromandelianum Garcke

Plant—considered emol., resolv., and bechic in the West Indies.

Leaves—applied to inflamed sores and wounds as a cooling and healing salve.

Flowers—given as pectoral and diaphor.

A native of America, introduced into India and now found in Madras and Bombay States, Punjab, Uttar Pradesh, Orissa and Bengal.

MANDRAGORA (*Solanaceae*)

M. officinarum Bertol.
S. & H.–*Lakshmana*; M.–*Kattai-jati*.

Plant—narcotic, anaesthetic, poisonous.

Alk. mandragorine isolated with properties similar to atropine (*Pharm. J.*, 1885, 1067); mandragorine stated to be a mixture of hyoscyamine and scopolamine (*Ber. dtsch. chem. Ges.*, 1901, 1023); besides these two alkaloids a third substance found in the plant to which the name mandragorine has also been applied (*J. prakt. Chem.*, 1901, 274).*

Mediterranean region.

MANGIFERA (*Anacardiaceae*)

M. caesia Jack
Malaya–*Binjai*.

Sap—sets up acute dermatitis when it comes into contact with the skin.

Malay Peninsula.

M. indica Linn.
S.–*Amra*; B.–*Am*; H. & Bo.–*Am*, *Amb*; Tam.–*Mamaram*; Tel.–*Amramu*; Mal.–*Amram*.

Leaves—in scorpion-sting.

Ripe fruit—laxt., diur., astrin., useful in haemor. from uterus, lungs or intestines.

Unripe fruit—useful in ophthalmia and eruptions.

Rind of fruit—astrin., stim. tonic in debility of stomach.

Seeds—used in asthma.

Kernel—astrin., used in haemor., in diar., anthelm., its juice if snuffed can stop nasal bleeding.

Bark—astrin., used in uterine haemor., haemoptysis and melaena, diar. and other discharges.

(*Chemikerztg*, 1897, 719; *Pharm. J.*, 1907, 718); fruit contains vitamins A, C and D (*Biochem. J.*, 1933, 1290; *Chem. Zbl.*, 1934, I, 563; *Philip. J. Sci.*, 1934, 379; *Chem. Zbl.*, 1934, II, 270); vitamin B (*Indian J. med. Res.*, 1933, 1045).

Probably indigenous in Sikkim, the Nambar forests in Assam, the Khasia Hills, in ravines on the higher hills of the Satpura Range, in Khandesh and along the W. Ghats. Cultivated in the tropics generally.

MANIHOT (*Euphorbiaceae*)

M. esculenta Crantz syn. *M. utilissima* Pohl
Ind. Baz.–*Cassarva*; H.–*Sakarkanda*; M.–*Maravuli*.

Juice—poisonous, in Guiana boiled down to a syrup given as aper.

Fresh rhizome—made into poultice applied to sores.

Cyanogenetic glucd. (*Proc. roy. Soc.*, 1906, 152; *J. Soc. chem. Ind., Lond.*, 1908, 428; *Ber. dtsch. pharm. Ges.*, 1906, 22); milky juice contains essen. oil 0·13%, saponins 1·14%, glucd. 1·66% and dyes 3·8%; essen. oil contains sulphur in organic combination (*Apothekerztg, Berl.*, 1937, 1007; *Chem. Abstr.*, 1937, 2288).

Occasionally cultivated in India.

M. utilissima Pohl; see **M. esculenta** Crantz

MANILKARA (*Sapotaceae*)

M. kauki Dub. syn. *Mimusops kauki* Linn.
H., P. & Bo.–*Khirni*; S.–*Talavrinta*; Tam.–*Palai*; Marathi–*Kauki*; Mal.–*Manilakkara*.

Seeds—tonic, febge., anthelm., made into powder used in ophthalmia, prescribed in leprosy, thirst, delirium and disorders of many secretions.

Root and bark—astrin., given in infantile diar., after being ground with water and mixed with honey.

Leaves—boiled in gingely oil and added to the pulverized bark used as a remedy for beri-beri.

(*Meded. PlTuin, Batavia*, 1902, 96).

Occasionally planted in Indian gardens. A native of Malay Peninsula and Archipelago.

MANISURIS (*Gramineae*)

M. granularis Sw.; see **Hackelochloa granularis** O. Ktze.

MARANTA (*Marantaceae*)

M. arundinacea Linn.

H.–*Tikkor*; B.–*Ararut*; Bo.–*Tavkil*; Tam.–*Arurutlukkilangu*; Tel.–*Palagunda*.

Rhizome—acrid, rubft., yields arrowroot.

(*Pharm. J.*, 1894, 624; *J. Soc. chem. Ind., Lond.*, 1887, 334).

Cultivated in grass green-houses and verandahs in India. Native of Tropical America.

MARLEA (*Cornaceae*)

M. tomentosa Endl.; see **Alangium kurzii** Craib

MARRUBIUM (*Labiatae*)

M. vulgare Linn.

H.–*Pahari gandana*; Ind. Baz.–*Farasiym*.

Herb—bitter tonic, expect., diur., carmin., pectoral, useful in colds, coughs and pulmonary affections.

Bitter substance, essen. oil (*Arch. Pharm., Berl.*, 1861, 257; *J. Amer. chem. Soc.*, 1908, 265; *Amer. J. Pharm.*, 1890, 327; *Pharm. Ztg, Berl.*, 1902, 74; *Amer. J. Pharm.*, 1897, 201; *J. Amer. pharm. Ass.*, 1930, 231); dried flowering tops contain 0·4% bitter principle marrubin (*Nature, Lond.*, 1939, 604; *Chem. Abstr.*, 1939, 4978; *J. chem. Soc.*, 1939, 587; *Chem. Abstr.*, 1939, 5407); leaves contain two crystalline substances of which one is marrubin (*Boll. chim.-farm.*, 1947, 56; *Chem. Abstr.*, 1947, 4893).

Kashmir, 5,000-8,000 ft., N.W. Frontier Province and Baluchistan.

MARSDENIA (*Asclepiadaceae*)

M. lucida Edgew.

Poisonous to sheep.

W. Himalayas, Kumaon and Nainital, 5,000-7,000 ft.

M. roylei Wight

H.–*Murkula*, P. & Simla–*Kurang*; Kumaon–*Murkila*; Almora–*Murkhila*; Dehra Dun–*Maruabel*.

Unripe fruit—cooling and alter.

Decoct.—used as remedy in gonor.

Western and Eastern Himalayas from Simla to Kumaon, ascending to 5,000 ft., Sikkim, 4,000 ft.

M. tinctoria R. Br.

B.–*Rion*; Nep.–*Kalilara*.

Alk. (*Meded. PlTuin, Batavia*, 1899, 138).

Sikkim Himalayas, 2,000-3,000 ft., Assam, Sylhet and Khasia Hills. Cultivated in the Deccan and elsewhere in India.

M. volubilis T. Cook.; see **Wattakaka volubilis** (Linn.) Stapf

MARTYNIA (*Pedaliaceae*)

M. annua Linn.

H. & P.–*Bichu, Hathajori*; B.–*Baghnoki*; Bo.–*Vinchu*; Tel.–*Garudamukku*.

Leaves—given in epilepsy, applied to tuberculous glands of the neck.

Juice—used as gargle for sore throat.

Fruit—alexiteric, useful in inflam.

A native of Mexico, now naturalized in India and springing up on rubbish-heaps and in waste places.

M. diandra Glox.; see **M. annua** Linn.

MATRICARIA (*Compositae*)

M. aurea Boiss. syn. *Cotula aurea* Linn.

Plant, chiefly the flowers—used in Spain as tonic, diaphor., anthelm., antipyr., antihysteric, and for pain in bowels.

Punjab.

M. chamomilla Linn.

Bo. & P.–*Babuna*.

Flowers—stim., attenuant, discutient, carmin., used in constitutional debility, in hysteria, dyspep., and intermittent fevers.

Oil—used externally in rheumatism, effective in flatulence and colic.

Essen. oil (*J. chem. Soc.*, 1914, 2280; *J. Amer. chem. Soc.*, 1915, 157, 1537; *Helv. chim. acta*, 1926, 118; *Ber. dtsch. chem. Ges.*, 1927, 2459); contains up to 3% of a glycoside which possesses spasmolytic action, in large doses it paralyses smooth muscle (*Arch. exp. Path. Pharmak.*, 1929, 144); β-heteroside (*Pharm. Acta Helvet.*, 1932, 332; *Chem. Zbl.*, 1933, I, 2974); essen. oil, chamazulene, apigenin, α-heteroside, salicylic acid and a non-crystalline β-heteroside; pure azulene isolated from the essen. oil is the anti-inflammatory principle (*Dtsch. Apoth-Ztg*, 1938, 1385, 1402; *Chem. Abstr.*, 1939, 1441; *Pharmazie*, 1946, 210; *Chem. Zbl.*, 1947, 64; *Chem. Abstr.*, 1947, 6021).

Punjab and Upper Gangetic Plain.

M. lasiocarpa Boiss.

Baluchistan–*Painphuli*.

Decoct. of flowers — used to cure fever.

Baluchistan.

MATTHIOLA (*Cruciferae*)

M. incana R. Br.

P. & B.–*Todri safed*.

Seeds—bitter, tonic, stim., expect., diur., stomch., aphrodis.; mixed with wine given as antid. to poisonous bites; used in infusion in cancer.

Cultivated in Indian gardens.

MECONOPSIS (*Papaveraceae*)

M. aculeata Royle

Simla–*Kanta*; Kumaon–*Kanda*.

Plant especially the root—considered narcotic and poisonous.

Kashmir, Garhwal and Kumaon, 11,000-15,000 ft.

M. napaulensis DC.

Root—used as narcotic.

Nepal and Sikkim, 9,000-10,000 ft., and Bhutan.

M. wallichii Hook.; see **M. napaulensis** DC.

MELALEUCA (*Myrtaceae*)

M. leucadendron Linn.

H. & Bo.–*Kayaputi*; B.–*Cajuputte*; Tam.–*Kaiyappudai*.

Oil distilled from fresh leaves and twigs—used internally and also as external application in rheumatism; stim. and antisp. in choleraic diar., rubft., used in psoriasis, chr. pityriasis, acne and eczema; mosquito repellent.

Bark—stim., tonic.

Essen. oil (*Chem. Zbl.*, 1929, 3044; 1930, 759; *J. chem. Soc.*, 1872, 251; *Chem. & Drugg.*, 1910, 832); chief ingredient of oil 40 to 60% of cajuputol which is identical with eucalyptol (U.S.D., 183); bark yields crystalline resinol melaleucin (*J. agric. chem. Soc. Japan*, 1939, 841; *Chem. Abstr.*, 1940, 767).

Sometimes planted in Indian gardens.

MELANORRHOEA (*Anacardiaceae*)

M. curtissi Oliv.

Properties similar to *M. wallichi*.

Malay Peninsula.

M. usitata Wall.

Burm.–*Thitsi*; Manipur–*Kheu*.

Thick fluid in all parts of the plant — anthelm., used in skin diseases.

(*Indian For. Rec.*, 1909, 287; *Chem. Zbl.*, 1914, 1979).

Upper and Lower Burma and Manipur.

M. wallichii Hook. f.

Sap—when it comes into contact with the skin, causes violent inflam., internally acts as a violent irrit., causing vomiting and purging.

Infusion of root—used as an antid. for poisoning by 'binjai' (*Mangifera caesia* Jack)

Malay Peninsula.

MELASTOMA (*Melastomaceae*)

M. decemfidum Roxb.

Root, leaf and fruit—astrin., used in diar. and diseases of the uterus.

Roots—used in Cambodia in treatment of liver complaints with jaundice, considered stim., tonic; in form of infusion prescribed in malaise and vertigo.

Burma, Malay Peninsula and Cochin-China.

M. malabathricum Linn.

Assam–*Futki*; Burma–*Myetype*; Tam.–*Kadalai*; Tel.–*Pattudu*; Mal.–*Katali*; Marathi–*Palore*; Uriya–*Koroti*.

Leaves—used in diar. and dysen.

Leaves and flower-tops—given as astrin. in leucor. and chr. diar. in Indo-China.

Throughout India except the desert.

MELIA (*Meliaceae*)

M. azadirachta Linn.; see **Azadirachta indica** A. Juss.

M. azedarach Linn.

S.–*Mahanimba*; P., H. & Bo.–*Bakain*, *Drek*; B.–*Ghoranim*; Tam.–*Malaivembu*; Tel.–*Vettiveppa*; Mal.–*Malaveppu*.

Root bark, fruit, flowers and leaves—deobstruent, resolv., alexipharmic.

Flowers and leaves—applied as poultice to relieve nervous headaches.

Juice of leaves—used internally as anthelm., antilithic, diur., emmen.

Seeds—prescribed in rheumatism.

Oil—properties considered similar to that of *neem* oil.

Leaves and bark—used internally and externally in leprosy and scrofula.

Fruit—used in leprosy and scrofula.

Fruits contain a poisonous constituent (*J. Elisha Mitchell sci. Soc.*, 1935, 134), alk. azaridine, a resin, tannin, meliotannic acid and benzoic acid; aqueous extract produces in rabbits dyspnoea, tremor, convulsions and death (*Rev. Asoc. med. argent.*, 1939, 338; *Chem. Abstr.*, 1939, 6951); fruits yield bakayanin, sterol (*J. sci. industr. Res.*, 1948, 69B), a bitter principle margosine with antiper. properties (*Chem. & Drugg.*, 1919, 551) and a fixed oil which contains sulphur (*Drugg. Circ.*, 1929, 40; U.S.D., 1352).

Cultivated and naturalized throughout India. Wild in the sub-Himalayan tract at 2,000-3,000 ft.

M. composita Willd. syn. *M. dubia* Hiern non Cav. (Fl. Br. Ind., I, 564).

S.–*Arangaka*; Mal.–*Malaveppu*; Assam–*Dingkurlong*; Bo.–*Nimbara*; Gujarati–*Kadukhajur*; Tam.–*Malaivembu*; Tel.–*Munnatikaraka*.

Fruit pulp—useful for colic.

Juice of green fruit—with a third of its weight of sulphur and equal quantity of curds, heated and applied to skin diseases and to sores infested with maggots.

Glucd. (Dymock, Warden & Hooper, I, 333).

E. Himalayas up to 6,000 ft., Assam, W. Ghats and below the Ghats to Tinnevelly, N. Circars, Ganjam, Deccan.

M. dubia Hiern non Cav. (Fl. Br. Ind., I, 564); see **M. composita** Willd.

MELIANTHUS (*Sapindaceae*)

M. major Linn.

Root—poisonous, emetic, remedy against snake-bite (*15th Rep. vet. Res. S. Afr.*, 1929, 799).

Kumaon, Ootacamund and Bhutan up to 9,500 ft.; cultivated in the Nilgiris.

MELICA (*Gramineae*)

M. ciliata Duthie

HCN (*J. Pharm. Chim., Paris*, 1906, 355).

Western Himalayas; in the drier regions from Kumaon westwards, 7,000-11,000 ft.

MELILOTUS (*Leguminosae*)

M. alba Desr.

Herb—occasionally used as subst. for *M. officinalis* in Central Europe.

Coumarin (Dymock, Warden & Hooper, I, 405; *Ber. dtsch. chem. Ges.*, 1874, 146; *Chem. Zbl.*, 1926, 2477).

Plains of N. India, ascending up to 12,000 ft.

M. indica (Linn.) All.

S.–*Banamethika*; P.–*Sinjee*; H. & B.–*Ban-methi*; Bo.–*Zir*.

Seeds—useful in bowel complaints and infantile diar., given as a gruel.

Plant—used as a discutient and emol.; externally as a fomentation, poultice or plaster for swellings.

Tropical zone of India.

M. officinalis Lam.

H.–*Aspurk*; B.–*Banpiring*.

Plant—arom., emol., carmin., styptic, taken internally to relieve flatulence; externally applied as fomentation or poultice for pains and aches.

Dried leaves and flowering tops yield coumarin (*Ber. dtsch. chem. Ges.*, 1920, 2027; 1920, 2069; *Apothekerztg, Berl.*, 1900, 515; U.S.D., 1516).

Nubra and Ladakh, 10,000-13,000 ft.

M. parviflora Desf.; see **M. indica** (Linn.) All.

MELISSA (*Labiatae*)

M. parviflora Benth.

H.–*Bililotan*; Urdu–*Baranjboya*.

Leaves and stems—antipyr., used in brain, liver and heart diseases and in bites of venomous insect.

Fruit—brain tonic, useful in hypochondriac conditions.

Plant—strengthens the gums and removes bad taste from the mouth.

Temperate Himalayas, from Garhwal to Sikkim and Mishmi and Khasia Hills.

MELOCHIA (*Sterculiaceae*)

M. corchorifolia Linn.

B.–*Tikiokra*; Mal.–*Seruvuram*; Tam.–*Pinnakkuppundu*; Tel.–*Sittantakura*.

Stems and leaves—boiled in oil, supposed to be a remedy for preventing bad consequences from bites of water-snakes.

Hotter parts of India from Kumaon to Sikkim, Cutch, Gujarat, Konkan, N. Kanara and most districts of the Madras State.

MELODINUS (*Apocynaceae*)

M. monogynus Roxb.

B. & Assam–*Sadulkou*.

Plant—fish poison.

Cooch Behar, Purnea, Sikkim Himalayas, Assam, Sylhet and Khasia Hills, ascending to 4,000 ft.

MELOTHRIA (*Cucurbitaceae*)

M. heterophylla Cogn.

B.–*Kudari*; Bo.–*Gametta*, *Gometta*; H.–*Amantmul*; Tel.–*Tiddanda*.

Juice of root—with cumin and sugar given in cold milk as a remedy for spermatorrhoea.

Juice of leaves—applied to parts which become inflamed from the application of the marking-nut juice.
Throughout India.

M. maderaspatana (Linn.) Cogn.
H.–*Agumaki*; Kumaon–*Agumarki*; Tam.–*Musimusikkayi*; Tel.–*Puttibudamu*; Mal.–*Mukkalpiram*.
Root—in decoct. useful in flatulence, and masticated for relief of toothache.
Tender shoots and leaves—used as a gentle aper. and recommended in vertigo and biliousness.
Seeds—in decoct. sudorific; crushed and applied on aching bodies, specially on strained backs.
Throughout India.

M. perpusilla Cogn.
M.P.–*Bankundri*.
Root—used with milk in fever and diar.
Upper Gangetic Plain, E. Bengal, E. Himalayas up to 5,000 ft., Assam, Khasia, Konkan, Deccan, W. Ghats and Nepal.

MEMECYLON (*Melastomaceae*)

M. amplexicaule Roxb.
Tam.–*Perungacha, Vachi*; Mal.–*Kasavu*; Kan.–*Neymaru*; Coorg–*Ollekodi*.
Decoct. of flowers and shoots—used in skin diseases.
Root—ecbolic.
Southern mountains of Malay Peninsula.

M. angustifolium Wight
S.–*Kakajembu*; Mal.–*Attukanila*; Tam.–*Vellaikkaya*; Kan.–*Belavakana*.
Bark—tonic and cooling.
Southern India.

M. edule Roxb.; see **M. umbellatum** Burm.

M. umbellatum Burm.
S.–*Anjani*; Bo.–*Anjana*; Kan.–*Archeti*; Mal.–*Kasavu*; Tam.–*Kasai*; Tel.–*Midalli*; Uriya–*Niroso*.
Leaves—used as a cooling astrin., in conjunctivitis as a lotion; internally given in leucor. and gonor.
Decoct. of root—useful in excessive menstrual discharges.
Western Peninsula, mostly on the coast. Inland mostly in evergreen and semi-evergreen shrub. Orissa, Assam and Sylhet.

MENTHA (*Labiatae*)

M. aquatica Linn.
Volatile oil from plant—used in Java as a popular remedy for headache and also in cholera.
Essen. oil (*Ber. Schimmel u. Co., Lpz.*, 1923, 52; 1926, 71; 1928, 66; 1932, 45); plant before flowering contains 0·079% essen. oil consisting of 55% aldehydes (*Boll. chim.-farm.*, 1936, 390; *Chem. Abstr.*, 1937, 2741).
Cultivated in Indian gardens.

M. arvensis Linn.
H. & B.–*Podina*; Bo.–*Pudinah*; Tam., Tel. & Marathi–*Pudina*; Mal.–*Putiyina*.
Dried plant—antisp., carmin., stomch., refrig., stim., emmen., diur.
Essen. oil (*Ber. Schimmel u. Co., Lpz.*, 1925, 61; 1926, 96); leaves yield 0·2% essen. oil containing *d*-carvone 80·8, carene 4·4, *d*-sylvestrene 3·8 and citronellol 6·2% (*Indian Soap J.*, 1940, 248; *Chem. Abstr.*, 1940, 6015).
W. Himalayas, Kashmir, 5,000-10,000 ft., Punjab, Kumaon and Garhwal.

M. longifolia Huds. syn. M. *sylvestris* Linn.
Bo., H. & S.–*Pudina*; P.–*Pudnakushna*.
Dried leaves and flower-heads—carmin., stim.
Leaves—soaked in water give an infusion which is drunk as a cooling medicine.
Essen. oil (*Ber. Schimmel u. Co., Lpz.*, 1913, April, 70; 1926, 72; *Bull. imp. Inst., Lond.*, 1913, 432; *J. Amer. chem. Soc.*, 1912, 67).
W. Himalayas, 4,000-12,000 ft.

M. piperita Linn.
English—*Peppermint*.
Essen. oil from plant—antisep., stim., carmin.
Herb—stim., stomch., carmin., used for allaying nausea, sickness, vomiting and as infants cordial.
Yields essen. oil 0·5-1·5% containing 56% free menthol and 4% esters (*Sci. pharm.*, 1937, 33; *Chem. Abstr.*, 1937, 4054); menthol content varies between 36·2-56% and ester 4·4-9·9% [*Rep. Hung. agric. Exp. Sta.*, 1939, 93; *Chem. Abstr.*, 1939, 7485; *Mitt. naturf. Ges. Bern.*, (1937), 21 (1938); *Chem. Abstr.*, 1939, 5129]; yield of menthol decreases by 30% if harvested 10-15 days earlier or later (*Proc. Amer. Soc. hort. Sci.*, 1944, 451; *Chem. Abstr.*, 1945, 4192).
Cultivated in Indian gardens.

M. sativa Linn.
Essen. oil (*Ber. Schimmel u. Co., Lpz.*, 1921, 85).
Cultivated in Indian gardens.

M. spicata Linn. syn. *M. viridis* Linn.
H. & P.–*Paharipudina*; B. & Bo.–*Pudina*.
Seeds—mucilaginous.
Leaves—given in fever and broncht., and in decoct. used as a lotion in aphthae.

Herb—considered stim., carmin. and antisp.

Yield of essen. oil is less than in *M. piperita* (Kirtikar & Basu, III, 1980).

Cultivated in Indian gardens.

M. sylvestris Linn.; see **M. longifolia** Huds.

M. viridis Linn.; see **M. spicata Linn.**

MENYANTHES (*Gentianaceae*)

M. trifoliata Linn.

Plant—bitter, tonic, purg., recommended in intermittent and remittent fevers, gout, herpetic complaints, rheumatism, dropsy, scurvy and worms; resembles Gentian in its properties.

Glucd. menyanthin, meliatin (*J. Pharm. chim., Paris*, 1910, 165; 1911, 49; 1913, 529; *Chem. News*, 1912, 25; 1916, 85; *Arch. Pharm., Berl.*; 1892, 38; 1925, 161; *Ber. dtsch. chem. Ges.*, 1927, 935).*

Kashmir.

MERIANDRA (*Labiatae*)

M. bengalensis Benth.

H.–*Kafur ka pat*; Bo. & Deccan-*Kafur ka patta*; Tam.–*Sayayilai*; Tel.–*Simakarpuramu*.

Infusion of leaves—useful application to aphthae and sore throats, diminishes or arrests the secretion of milk.

Cultivated in most of the States in India. A native of Abyssinia.

M. strobilifera Benth.

Decoct.—when made strong forms a useful lotion for ulcers and heals raw abrasions of the skin; dries up breast milk.

Western temperate Himalayas, from Simla to Kumaon, 5,000-6,000 ft.

MERREMIA (*Convolvulaceae*)

M. tridentata Hallier f.

M.–*Mudiyakunthal*; S.–*Prasarini*.

Plant—used in rheumatism, piles and urinary disorders; tonic and laxt.

All plain districts of Madras State, Western Peninsula and Bengal.

M. umbellata Hallier f.

M.–*Kolavarvalli*.

Seeds—used in medicine.

Throughout India (except the north-western dry area).

M. vitofolia Hallier f. syn. *Ipomoea vitifolia* Sweet

Bo.–*Nawal*.

Plant—given in strangury and urethral discharges.

Juice—cooling, diur., and a preparation from it is applied to inflamed eyes.

Root—eaten raw as stomch.

Glucd. (*Pharm. Weekbl.*, 1906, 907).

Throughout India (except the north-western dry area).

MESUA (*Guttiferae*)

M. ferrea Linn.

H. & B.–*Nagkesar*; Bo.–*Nagchampa*; P.–*Nagkesar*; S.–*Nagakeshara*; Tam.–*Nagappu*; Tel.–*Kesaramu*; Mal.–*Nagachempakam*; Assam–*Nahor*.

Flowers—astrin., stomch., used in cough attended with expectoration; made into a paste with butter and sugar used in bleeding piles and burning of the feet.

Flower buds—used in dysen.

Unripe fruits—arom., sudorific.

Bark—astrin., arom., combined with ginger used as sudorific.

Leaves and flowers—in snake-bite and scorpion-sting.

Flowers contain essen. oil, two bitter substances (*Bull. Inst. bot. Buitenz.*, 1904, 214; *Pharm. J.*, 1908, 161; *Chem. Zbl.*, 1910, 580); contains bitter principle mesuol 1% (*J. Indian chem. Soc.*, 1940, 277; *Chem. Abstr.*, 1940, 6297).

Mountains of E. Himalayas and E. Bengal, Assam, evergreen rain-forests of N. Kanara and S. Konkan, forests of the W. Ghats from S. Kanara to Travancore, up to 5,000 ft., Andamans.

MICHELIA (*Magnoliaceae*)

M. champaca Linn.

H. & B.–*Champa, Champaka*; Bo.–*Champa*; S.–*Champaka*; Marathi–*Kudchampa*; Mal.–*Champakam*; Tam.–*Shampangi*; Tel.–*Champakmu*.

Bark—febge., stim., expect., astrin.

Dried root and root bark—purg., in form of infusion useful emmen.; mixed with curdled milk useful application to abscesses.

Flowers and fruits—considered stim., antisp., tonic, stomch., carmin., bitter and cooling, used in dyspep., nausea and fever; useful as diur. in renal diseases and in gonor.; mixed with sesamum oil forms an external application in vertigo.

Oil from flowers—useful application in cephalalgia, ophthalmia and gout.

Juice of leaves—given with honey in colic.

Seeds and fruit—used for healing cracks in feet.

Flowers contain essen. oil (*Philipp. J. Sci.*, 1909, 131A; 1910, 262; 1911, 333; *J. Amer. chem. Soc.*, 1911, 1763; *Parfum. mod.*, 1927, 98); essen. oil 0·11% (*Bull.*

imp. Inst., Lond., 1934, 253; *Chem. Zbl.*, 1934, II, 2613).

Wild in the Eastern sub-Himalayan tract and lower hills up to 3,000 ft., Assam, W. Ghats and S. India. Much cultivated in various parts of India.

M. montana Bl.

Bark—bitter tonic useful in fevers.

The Himalayas.

M. nilagirica Zenk.

H. & Marathi–*Pilachampa*; Kan.–*Bilisampage*; Tam.–*Shambagan*.

Bark—febge.

Essen. oil and bitter substance (*Ber. Schimmel u. Co., Lpz.*, 1887, Oct., 36; *Philipp. J. Sci.*, 1911, 333).

Shola forests of the Nilgiris, Anamalais and Pulneys, above 5,000 ft.

MICROGLOSSA (*Compositae*)

M. volubilis DC.

Plant—given in Gold Coast as an enema to cure fever in babies; in Liberia used as vermifuge; in Cameroon Mountain area used as remedy for severe cough.

Khasia Hills, Assam, Naga Hills and Cachar.

MICROMERIA (*Labiatae*)

M. capitellata Benth.

Plant—arom., carmin., subst. for *Mentha piperita*.

Kumaon, Dehra Dun, Upper Gangetic Plain, Chota Nagpur, Bihar, W. Ghats, N. Circars and the Nilgiris.

MICRORHYNCHUS (*Compositae*)

M. nudicaulis Less.; see **Launaea nudicaulis** Hook. f.

MIKANIA (*Compositae*)

M. scandens Willd.

Plant—used by the Thongas as a remedy for snake-bite and scorpion-sting.

E. Assam, in the Duphla Hills.

MILLETTIA (*Leguminosae*)

M. atropurpurea Benth.; see **Adinobotrys atropurpureus** Dunn.

M. auriculata Baker ex Brand.

H. & Kumaon–*Gauj*; Nep.–*Gonjo*; Mal.–*Vallimuritali*; Oudh–*Mandh*; Tel.–*Kondatangedutige*; Uriya–*Kissi*.

Roots—applied to sores on cattle to kill vermin; used as fish poison.

Outer Himalayas from the Sutlej eastwards to Sikkim, up to 3,500 ft., forest tracts of Dehra Dun, Siwalik Range, Rohilkhand, N. Oudh, Gorakhpur, Bundelkhand, Bihar, Orissa, Bengal, forests of Ganjam and Vizagapatam up to 4,000 ft.

M. pachycarpa Benth.

B.–*Bishloti*; Nep.–*Kakushbish*.

Root—used as fish poison.

Saponin (*Ber. dtsch. chem. Ges.*, 1890, 3538; *Pharm. Zentralh.*, 1892, 742); roots contain 4% total resin and 1·2% rotenone (*Curr. Sci.*, 1937, 57).

Forests of Garo and Khasia Hills, Sikkim and Assam up to 4,000 ft.

MIMOSA (*Leguminosae*)

M. pudica Linn.

S.–*Lajja*; Marathi–*Lajalu*; B.–*Lajak*; H. & P.–*Lajwanti*; Mal.–*Tottavati*; Tam.–*Tottalvadi*; Tel.–*Peddanidrakanti*.

Decoct. of root—useful in gravellish complaints.

Leaves and root—used in piles and fistula.

Leaves—rubbed into a paste applied to hydrocele.

Leaf and stem—in scorpion-sting.

Alk. mimosine (*Hoppe-Seyl. Z.*, 1936, 153; 1937, 80).

Naturalized more or less throughout India. Probably a native of Tropical America.

M. rubicaulis Lam.

H. & B.–*Shiah-kanta*; Bo.–*Huziru*; Garhwal—*Khinkari*; Mal.–*Kattusinikka*; P.–*Arlu*; Tam.–*Ingai*; Tel.–*Undra*.

Leaves—in form of infusion prescribed in piles; bruised and applied to burns.

Root—in powder form given when from weakness the patient vomits his food.

Throughout India.

M. suma Roxb.; see **Acacia suma** Buch.-Ham.

MIMUSOPS (*Sapotaceae*)

M. elengi Linn.

S.–*Bakula*; H. & B.–*Bakul*; Bo.–*Borsali*; Mal.–*Bakulam*; P.–*Maulsari*; Tam.–*Magilam*; Tel.–*Vakulamu*.

Bark—astrin., tonic, useful in fevers.

Leaves—in snake-bite.

Pulp of ripe fruit—astrin., used in curing chr. dysen.

Seeds—bruised and locally applied within the anus of children in cases of constipation.

Seeds contain saponin (*J. Soc. chem. Ind., Lond.*, 1910, 1430; *Chem. Zbl.*, 1930, 2895); kernel yields an oil.

Western Peninsula, southwards from Khandala Ghat on the west and the N. Circars on the east side and the Andamans.

M. hexandra Roxb.

S.–*Rajadani*; H.–*Khirni*; B.–*Khirkhejur*; Bo.–*Rajan*; Mal., Tam. & Tel.–*Pala*.

Bark—astrin., tonic, demulc., emol., alter.

Seeds yield an oil (*J. Indian Inst. Sci.*, 1924, 71; *C.R. Acad. Sci., Paris*, 1888, 1625).

Upper Gangetic Plain, Central and S. India, Gujarat, Khandesh, Deccan and Sriharikota.

M. kauki Linn.; see **Manilkara kauki** Dub.

MIRABILIS (*Nyctaginaceae*)

M. jalapa Linn.

S. & B.–*Krishnakeli*; H. & Bo.–*Gulabbas*; Tam.–*Pattarashu*; Tel.–*Chandrakanta*; Mal.–*Antimalari*.

Root—aphrodis., purg.

Leaves—maturant, lessen inflam., applied to boils, phlegmons and whitlow.

Alk. trigonelline (*Hoppe-Seyl. Z.*, 1912, 290; 1913, 270).*

Cultivated or spontaneous over the greater part of India; also common in the hotter valleys of N.W. Himalayas up to 7,000 ft. and in the far east in Bengal and Manipur.

MODECCA (*Passifloraceae*)

M. palmata Lam.; see **Adenia palmata** Engl.

M. wightiana Wall.; see **Adenia wightiana** Engl.

MOLLUGO (*Ficoidaceae*)

M. cerviana Ser.

B.–*Ghimasag*; Bo.–*Pada*; Tam.–*Parpadagam*; Tel.–*Parpataka*.

Plant—febge., used for promoting the flow of lochial discharges, and as cure for gonor.

Punjab, Sind, W. Rajputana, Gujarat, S. Mahrata Country, Deccan and Carnatic.

M. hirta Thunb.; see **M. lotoides** (Linn.) O. Kuntze

M. lotoides (Linn.) O. Kuntze syn. *M. hirta* Thunb.

H. & P.–*Gandibuti*; B.–*Duserasag*; S.–*Bhissata*; Gujarati-*Gholo okharod*.

Dried plant—in diar., purg., cure for boils, bilious attacks and for wounds and pains in the limbs.

Juice—given internally to weak children.

Throughout India.

M. nudicaulis Lam.

M.–*Parppadagam*.

Leaves—applied to boils to draw out pus.

Plant—bitter, considered pectoral, used in athrepy and whooping cough.

Hotter parts of India.

M. oppositifolia Linn.

S.–*Phanija*; H. & B.–*Jima*; Marathi-*Jharasi*; Tam.–*Kachantarai*; Tel.–*Chayuntarashiaku*; Mal.–*Kaipajira*.

Plant—stomch., aper., antisep., administered for suppression of the lochia; applied warm moistened with little castor oil as cure for earache.

Juice—applied in skin diseases and itch.

Gujarat, Deccan, S. Mahrata Country, N. Kanara, Carnatic, in dry places and on wastelands.

M. pentaphylla Linn.

B.–*Julpapra*; Bo.–*Jharas*; Tel.–*Verrichatarasi*; Uriya–*Pitagohum*.

Plant—stomch., aper., antisep.

Infusion of plant—emmen.

Leaves—bitter, antiper.

Throughout India.

M. spergula Linn.; see **M. oppositifolia** Linn.

M. stricta Linn.; see **M. pentaphylla** Linn.

MOMORDICA (*Cucurbitaceae*)

M. balsamina Linn.

Bo.–*Kurelo-jangro*; H.–*Mokha*; Gujarati–*Chhochhidan*.

Fruit—famous in Syria for healing wounds.

Fruit contains cath. principle momordicin which seems to be identical with elaterin (U.S.D., 1523).

Sind, Gujarat, Deccan, Punjab plains; also reported from Dehra Dun.

M. charantia Linn.

S.–*Sushavi*; H. & P.–*Karela*; B.–*Karala*; Bo.–*Karla*; Tam.–*Pavakkachedi*; Tel.–*Kakara*; Mal.–*Kappakka*; M.–*Pagel*; Assam–*Kakral*.

Juice of leaves—emetic, purg., given in bilious affections; rubbed in burning of the soles of the feet.

Fruit and leaves—anthelm., useful in piles, leprosy, jaundice and as vermifuge.

Root—astrin., useful in haemorrhoids.

Fruit—stomch.

Juice of fruit—in snake-bite.

(*Ber. dtsch. chem. Ges.*, 1904, 308; *Arch. Pharm., Berl.*, 1863, 111; *Apothekerztg, Berl.*, 1929, 1480); contains alk. 0·038% (*Puerto Rico J. publ. Hlth.*, 1936, 812; *Chem. Abstr.*, 1936, 6133); highly arom. essen. oil, carotene, glucd., saponin and alk. momoridicine (*Amer. J. Pharm.*, 1941, 281; *Chem.*

Abstr., 1941, 7651; drug exerts some hypoglycemic action on rabbits and may have clinical usefulness in diabetes (*Amer. J. Pharm.*, 1942, 72; *Chem. Abstr.*, 1942, 3847).*
Cultivated throughout India.

M. cochinchinensis Spreng.
S.–*Karkataka*; H. & B.–*Kakrol*; Tel.–*Adavikakara*; Marathi–*Kakana*; Gujarati–*Karapata*.
Seeds—used for cough and chest complaints; stimulate uterine discharges.
Throughout India.

M. cymbalaria Fenzl ex Naud.; see **M. tuberosa** Cogn.

M. dioica Roxb.
S.–*Vahisi*; H.–*Golkandra*; Bo.–*Kurtoli*; Assam–*Batkarila*; Mal.–*Erimapasel*; P.–*Dharkarela*; Tam.–*Paluppakkay*; Tel.–*Agakara*.
Root—toasted and used to stop bleeding from piles; used in urinary complaints; ground to paste smeared over the body as a sedative in high fever with delirium; used in snake-bite and scorpion-sting; juice used as antisep.
Powder or infusion of dried fruits—if introduced into nostrils, produces a powerful errhine effect, and provokes a copious discharge from the schneiderian mucous membrane.
Shows alk. content (Dymock, Warden & Hooper, II, 76).
Throughout India, ascending to 5,000 ft. in the Himalayas.

M. tuberosa Cogn. syn. *M. cymbalaria* Fenzl ex Naud.
Bo. & Marathi–*Kadavanchi*.
Tubers—abortif.
Bitter glucd. (Dymock, Warden & Hooper, II, 76).
Western parts of India from Satara district in the north down to Tinnevelly in the south.

M. umbellata Roxb.; see **Melothria heterophylla** Cogn.

MONIERA (*Scrophulariaceae*)

M. cuneifolia Michx.; see **Bacopa monnieri** (Linn.) Pennell

MONOCHORIA (*Pontederiaceae*)

M. hastaefolia Presl
S.–*Neelotpalam*; M.–*Karinkuvalam*.
Plant—alter., tonic, cooling; also used in insanity.
Juice of leaves—in boils.
Throughout India.

M. vaginalis Presl
B.–*Nanka*; Tel.–*Nirokancha*.
Root—chewed for toothache.
Bark—eaten with sugar for asthma.
Throughout India.

MORCHELLA (*Helvellaceae*)

M. esculenta
P.–*Kana-kach*.
Aphrodis., narcotic.
Kashmir, Chamba and many parts of N. Punjab.

MORICANDIA (*Cruciferae*)

M. tortuosa Hook. f. & Th.
Decoct. of flowers—rubbed on for eczema in Waziristan.
Salt plains of the Punjab, west of the Indus.

MORINA (*Dipsaceae*)

M. persica Linn.
H.–*Bekh-akhwar*.
Mentioned as a drug plant.
W. Himalayas, 7,000-9,000 ft., from Kashmir to Kumaon.

MORINDA (*Rubiaceae*)

M. citrifolia Linn.
H. & B.–*Ach*; S.–*Ashyuka*; Bo.–*Aal*; M.P. & Deccan–*Al*; Mal.–*Mannanatti*; Tam.–*Vellainuna*; Tel.–*Mulugu*.
Root—cath.
Leaves—administered internally as tonic and febge.; used as a healing application to wounds and ulcers.
Baked fruit—in Indo-China used as emmen., and given in asthma and dysen.
Unripe berries—charred and mixed with salt applied successfully to spongy gums.
Juice of leaves—applied to gout externally.
Root contains glucd. morindin (*Arch. Pharm., Berl.*, 1907, 534, 281; *J. chem. Soc.*, 1887, 87; 1920, 561; 1918, 766); yields anthraquinone derivatives (U.S.D., 1524).
Indigenous to the Darjeeling Terai and outer hills and found in the Andamans and along the Konkan coast; cultivated largely in India.

M. tinctoria Roxb.
S.–*Achchhuka*; H. & B.–*Ach*; Bo.–*Ack*; Mal.–*Kattapitalavam*; Tam.–*Manjanatti*; Tel.–*Togaru*.
Root—used internally as an astrin.
Glycoside morindin from wood (U.S.D., 1524).
Bengal, Bihar, Madhya Pradesh, Deccan, S. Mahrata Country, N. Kanara, Madras State; S. Deccan and Carnatic to S. Travancore, westwards to the eastern slopes of the Ghats.

M. umbellata Linn.

Bo.–*Al*; S.–*Pitadaru*; Tam.–*Nuna*; Tel.–*Shiranji*; Kan.–*Poppili*.

Leaves—in conjunction with certain aromatics, in form of decoct. used in diar. and dysen.

Glucd. (*J. chem. Soc.*, 1893, 1160; 1864, 851); yields anthraquinone derivatives (U.S.D., 1524).

Khasia Hills, Madras State, E. Ghats, Vizagapatam, Deccan, Chingleput, N. Coimbatore, W. Ghats in all districts.

MORINGA (*Moringaceae*)

M. concanensis Nimmo

Bo.–*Sainjna*; H.–*Sajana*; Tam.–*Kattumurungai*; Tel.–*Kondamunaga*; S.–*Svetashigru*.

General properties same as those of *M. oleifera*.

Roots—used as subst. for those of *M. oleifera*.

Rajputana, dry hills of the Konkan, Berar, N. Circars and Deccan, from Vizagapatam to Guntur, Kurnool and Coimbatore; Baluchistan and Sind.

M. oleifera Lam. syn. *M. pterygosperma* Gaertn.

S.–*Sobhanjana*; H. & P.–*Soanjna*; B.–*Sajna*; Bo.–*Sujna*; Tam.–*Murungai*; Tel.–*Sajana*; Mal.–*Sigru*.

Root—used as stim. in paralytic affections and intermittent fever; used in epilepsy; rubft. in palsy and chr. rheumatism; carmin., stomch., abortif., as cardiac and circulatory tonic; in form of a compound spirit useful in fainting, giddiness, nervous debility, spasmodic affections of the bowels, hysteria and flatulence.

Root bark—used as fomentation to relieve spasm.

Bark—abortif.

Fruit—used in diseases of liver and spleen, articular pains, tetanus and paralysis.

Flowers—stim., aphrodis.

Oil from seeds—used as external application in rheumatism.

Gum—used for dental caries; mixed with sesamum oil poured into the ears for the relief of otalgia.

Seeds—used in venereal affections.

Alk., gum (*C.R. Acad. Sci., Paris*, 1900, 733; 1908, 647; *Arch. Pharm., Berl.*, 1906, 159; *Analyst*, 1903, 342; *Indian med. Gaz.*, March 1932); alkaloids moringine and moringinine isolated from root bark (*Indian J. med. Res.*, 1932, 533; 1935, 785) ; flowers contain amorphous base (*Curr. Sci.*, 1946, 316; *Chem. Abstr.*, 1947, 3262); antibiotic pterygospermin active against both gram-positive, gram-negative and acid-fast bacteria (*Indian J. med. Res.*, 1949, 159).*

Indigenous in the sub-Himalayan tract from the Chenab to Oudh; also cultivated throughout India.

M. pterygosperma Gaertn.; see **M. oleifera** Lam.

MORUS (*Moraceae*)

M. acedosa Griff. syn. *M. indica* Linn.

S.–*Shalmali*; H., P., B. & Bo.–*Tut*; Mal.–*Yusham*; Tam.–*Kambali*; Tel.–*Putika*.

Fruit—arom., cooling, laxt., allays thirst, grateful in fevers.

Bark—anthelm., purg.

Leaves—in decoct. used as gargle in inflam. of vocal cords.

Root—anthelm., astrin.

Wild in the sub-Himalayan tract from the Sutlej eastwards, up to 5,000 ft. Cultivated elsewhere.

M. alba Linn.

S.–*Tula*; H., P. & Bo.–*Tut*; Tam.–*Pattupuchi*.

Fruit—refrig. in fever, used as remedy for sore throat, dyspep. and melancholia.

Bark—purg., anthelm.

(*Arch. Pharm., Berl.*, 1917, 187; *Chem. Zbl.*, 1926, II, 45); essen. oil (*Chem. Zbl.*, 1934, I, 2770; Wehmer, I, 237).

Commonly cultivated in Baluchistan and the northern part of the Trans-Indus territory, also in the Punjab, Kashmir and the N. W. Himalayas.

M. indica Linn.; see **M. acedosa** Griff.

M. nigra Linn.

Baluchistan–*Shahtut*.

Fruit—nutri., refrig., laxt., checks thirst, cools the blood.

Bark—purg., vermifuge.

Cultivated in Baluchistan.

MOSCHOSMA (*Labiatae*)

M. polystachyum Benth.

Tam.–*Sanakki poondu*.

Juice of the plant—squeezed into the nostrils of children to cure headache in Gold Coast.

Gujarat, Konkan, Deccan, Bengal and Bihar.

MUCUNA (*Leguminosae*)

M. capitata W. & A.

Seed contanis alk. and fatty oil (*Pharm. Weekbl.*, 1906, 202; 1909, 881; Wehmer, I, 584).

Foot of the western and eastern Himalayas.

M. gigantea DC.
Mal.–*Kakavalli*; Tam.–*Kalgaivalli*; Tel.–*Enugadulagondi*; Kan.–*Turibilangi*.

Bark—used in rheum. complaints; it is pulverized, mixed with dry ginger and rubbed over the affected parts.

Bristles of pods—used as poison.

A littoral species found on the Indian coast.

M. monosperma DC.
Bo.–*Sonogaravi*; Gujarati–*Kagadoliya*; Nep.–*Baldhengra*; S.–*Khatavangi*; Tam.–*Periyattalargai*; Tel.–*Peddadulagondi*.

Seeds—used as expect. in cough and asthma and applied externally as a sedative.

E. Himalayas, Khasia Hills, Assam, Chittagong, Konkan and S. Mahrata Country.

M. pruriens Bak. (Fl. Br. Ind., II, 187, non DC.); see **M. prurita** Hook.

M. prurita Hook. syn. *M. pruriens* Bak. (Fl. Br. Ind., II, 187, non DC.)
S.–*Atmagupta*; H. & P.–*Kawanch*; B.–*Alkusa*; Bo.–*Kuhili*; Mal.–*Shoriyanam*; Tel.–*Dulagondi*; Tam.–*Punaikkali*.

Seeds—aphrodis., nervine tonic, in scorpion-sting.

Pods—anthelm.

Root—purg., prescribed as remedy for delirium in fever; powdered and made into a paste applied to the body in dropsy; strong infusion mixed with honey given in cholera.

(*Chem. Zbl.*, 1923, I, 1372; 1921, I, 456); seeds give 4% reddish viscous oil and alks. mucunine and mucunadine (*Indian J. Pharm.*, 1944, 92; *Chem. Abstr.*, 1946, 3227).

Punjab plains, from the base of the Himalayas to Ceylon and Burma.

MUKIA (*Cucurbitaceae*)

M. scabrella Arn.; see **Melothria maderaspatana** (Linn.) Cogn.

MUNDULEA (*Leguminosae*)

M. sericea (Willd.) Greenway syn. *M. suberosa* Benth.
Bo. & Deccan–*Supti*; Mal.–*Kattutuvara*; Tam.–*Kadupporasu*; Tel.–*Palasaram*; Kan.–*Kadutuvari*.

Seeds—fish poison.

Bark contains non-alk. thermostable principle with marked depressor action; bark and root contain a very toxic glycoside; lethal dose for frog 0·001 g. bark/g. wt. of animal (*S. Afr. J. med. Sci.*, 1945, 51; *Chem. Abstr.*, 1946, 7394); bark and stems yield a compound which is as powerful a fish poison as rotenone; root bark yields another compound (*Rec. Trav. chim. Pays-Bas*, 1947, 177; *Chem. Abstr.*, 1947, 6607).

Konkan, Deccan, Circars, Carnatic to Tinnevelly, up to 4,000 ft. on the rocky hills.

M. suberosa Benth.; see **M. sericea** (Willd.) Greenway

MURRAYA (*Rutaceae*)

M. exotica Linn.; see **M. paniculata** (Linn.) Jack

M. koenigii Spreng.
S.–*Surabhinimba*; H.–*Kalnim*; B.–*Barsunga*; Bo.–*Karrinim*; Tam.–*Karuveppilai*; Tel.–*Karivepaku*; Mal.–*Karivepu*; P.–*Gandanim*.

Plant—tonic, stomch.

Bark and root—stim., externally used to cure eruptions and bites of poisonous animals.

Green leaves—eaten raw as cure for dysen.; bruised and applied externally to cure eruptions; given in decoct. with bitters as febge. and used in snake-bite.

Essen. oil, glucd. koeinigin (*J. roy. Soc. N.S.W.*, 1926, 146).

Konkan, W. Ghats of Bombay to Travancore, Deccan, S. Mahrata Country, in most districts of the Madras State, chiefly in N. Circars, along the foot of the Himalayas from Kumaon to Sikkim up to 5,000 ft. and Bengal.

M. paniculata (Linn.) Jack syn. *M. exotica* Linn.
H.–*Marchula*; B.–*Kamini*; Bo.–*Chulajuti*; Kan.–*Pandry*; Tam.–*Simaikkonji*; Tel.–*Nagagolunga*.

Ground bark of root—eaten and rubbed on in body-ache.

Powdered leaf—used as application to fresh cuts.

Decoct. of leaves—drunk in dropsy.

Leaves—stim., astrin., administered in diar. and dysen.

Bark of stem and root—antidiarrhoeal.

Flowers contain glucd. murrayin (*Ber. dtsch. chem. Ges.*, 1876, 690; *Pharm. Weekbl.*, 1908, 1325; *J. roy. Soc. N.S.W.*, 1926, 146); air-dried petals yield glucd. scopolin (*J. Indian chem. Soc.*, 1937, 489; *Chem. Abstr.*, 1938, 4969).

Outer Himalayas from the Jumna westwards, ascending to 5,000 ft., Assam, Satpura Range and hills of the Peninsula.

MUSA (*Musaceae*)

M. paradisiaca Linn.
S.–*Kadali*; H. & Bo.–*Kela*; B.–*Kala*.

Root—anthelm.

Flowers—astrin.

Juice of stem—in otalgia and haemoptysis.

Analysis of fruit (*J. Amer. chem. Soc.*, 1912, 1706; *Chem. Zbl.*, 1921, IV, 137; *C.R. Acad. Sci., Paris*, 1912, 893; *Apothekerztg, Berl.*, 1910, 440).

Commonly cultivated.

M. paradisiaca Linn. var. **sapientum** Kuntze syn. *M. sapientum* Linn.

S.–*Rambha*; H. & Bo.–*Kela*; B.–*Kala*; Tam. & Tel.–*Kadali*; Mal.–*Kadalam.*

Root and stem—tonic, antiscor., useful in blood and venereal diseases.

Root—anthelm.

Unripe fruit—in combination with other drugs used in diabetes.

Ripe fruit—antiscor., used as a mild demulc., astrin. diet in cases of dysen.

Juice of flowers—mixed with curds used in dysen. and menor.

Sap of the stem—used in nervous affections like hysteria and epilepsy; drunk in dysen. and diar.; forms a valuable drink and mouthwash to allay thirst in cholera.

Young leaves—used as a cool dressing for blisters and burns.

Indigenous in Bihar and the E. Himalayas up to 4,000 ft. Cultivated throughout India.

M. sapientum Linn.; see **M. paradisiaca** Linn. var. **sapientum** Kuntze

M. textilis Nees

Tam.–*Peyanvali.*

Root—used as worm remedy in Annam.

Occasionally planted in Indian gardens. Native of the Philippines.

MUSSAENDA (*Rubiaceae*)

M. frondosa var. **glabrata** Hook. f.; see **M. glabrata** Hutch.

M. glabrata Hutch.

S.–*Shrivati*; H.–*Bedina*; Bo.–*Bhutakesa*; Kan.–*Billoothi*; Mal.–*Vellila*; Tam.–*Vellaiyilai.*

Root—half a tola given with cow's urine in white leprosy.

White leaves—two tolas given in milk in jaundice.

Flowers—pectoral, diur., given in asthma, intermittent fevers and dropsy; externally applied as detergent to ulcers.

Tropical Himalayas, Assam, Konkan, Deccan, W. Ghats of Bombay State, N. Kanara, W. Ghats of S. Kanara, Malabar and Tinnevelly, Andamans.

MYLITTA (*Fungi*)

M. lapidescens Horan.

Tam.–*Karunpallagam.*

Fungus—diur.; in China used in epilepsy, chorea and other nervous affections of children, and for destroying parasites in the skin.

MYRICA (*Myricaceae*)

M. nagi Thunb.

S.–*Katphala*; H., P., B. & Bo.–*Kaiphal*; Tam.–*Marudam*; Tel.–*Kaidaryamu*; Mal.–*Maruta.*

Bark—astrin., carmin., antisep., useful in fever, asthma, cough; powdered and used as snuff in catarrh with headache; mixed with ginger used as a rubft. application in cholera; fish poison.

(*J. chem. Soc.*, 1896, 1287; *Proc. chem. Soc., Lond.*, 1902, 11); contains the glycoside myricitrin (*J. chem. Soc.*, 1925, 183).

Subtropical Himalayas from the Ravi eastwards at 3,000-6,000 ft., Khasia Hills and Sylhet.

MYRICARIA (*Tamaricaceae*)

M. elegans Royle

P.–*Humbu, Umbu*; Garhwal–*Wombu.*

Leaves—applied to bruises.

W. Himalayas, Kunawar, Spiti, Lahul, Ladakh and Kumaon up to 14,000 ft.

M. germanica Desv.

P.–*Bis, Umbu.*

Decoct. of bark—used as aper., and in jaundice in Spain.

Temperate and alpine Himalayas, from Sikkim to Kumaon, 10,000-14,000 ft.

MYRIOGYNE (*Compositae*)

M. minuta Less.; see **Centipeda orbicularis** Lour.

MYRISTICA (*Myristicaceae*)

M. fragrans Houtt.

S.–*Jatiphala*; H., B. & Bo.–*Jaiphal*; Tam.–*Jadikkay*; Tel.–*Jajikaya*; Mal.–*Jatikka.*

Seeds—carmin., stomch., useful in flatulency, nausea and vomiting.

Oil from dried kernels—aper., carmin.

Essen. oil, saponin (*Pharm. Weekbl.*, 1909, 16; *Proc. chem. Soc., Lond.*, 1907, 285; 1908, 197; *J. chem. Soc.*, 1908, 1653; *Arch. Pharm., Berl.*, 1933, 56; *Chem. Zbl.*, 1933, I, 2758; *J. Amer. pharm. Ass.*, 1932, 30); dry ripe seeds contain 5 to 15% of a volatile oil and 25 to 40% of a fixed oil (U.S.D., 726); dry leaves yield 1·56% essen. oil consisting of 80% α-pinene and 10% myristicin (*Ingen. Ned. Ind.*, No. 1, 1941, 7; *Chem. Abstr.*, 1941, 4549).*

A native of the E. Moluccas, cultivated in the Malay Peninsula and the Malay Islands. In India it is found only as a specimen tree in a few localities, chiefly botanic gardens, where the climate is sufficiently hot and moist.

M. malabarica Lam.

Bo.–*Rampatri*; S.–*Kamuka*; Tam.–*Kattuchadi*; Tel.–*Adavijajikaya*; Mal.–*Kattujattika.*

Seeds—in form of *lep* used as an external application.

Fat—mixed with little oil applied to indolent ulcers, allays pain, cleanses the surface and establishes healthy action.

Essen. oil (*Apothekerztg, Berl.*, 1886, No. 34; *Agric. Ledger*, 1907; *Analyst*, 1909, 519; *J. Soc. chem. Ind., Lond.*, 1933, 100T; *Chem. Zbl.*, 1933, II, 2763).*

Evergreen forests of Konkan Ghats, Kanara and Malabar up to 1,000 ft.

MYRSINE (*Myrsinaceae*)

M. africana Linn.

H.–*Chapra*; Kash.–*Gugil*; P.–*Bebrang*; Almora–*Ghani*; Garhwal–*Rikadalmi.*

Fruit—used as anthelm., especially for tape-worm, laxt. in dropsy and colic.

Gum—warm remedy for dysmen.

Decoct. of leaf—used as a blood purifier.

Berries yield 3% embelic acid and 1% quercitol (*J. Indian chem. Soc.*, 1936, 115; *Chem. Abstr.*, 1936, 4619); seeds contain 1% quercitol and 4·8% embelic acid to which they owes their anthelm. properties (*Bull. imp. Inst., Lond.*, 1938, 319; *Chem. Abstr.*, 1939, 316).

From Kashmir and the Salt Range to Nepal, 1,000-8,500 ft.

MYRTUS (*Myrtaceae*)

M. communis Linn.

H. & P.–*Vilayiti mehndi*; B.–*Sutrsowa*; Bo.–*Abhulas*; Tam.–*Kulinaval*; Urdu–*Habulas.*

Leaves—astrin., considered useful in cerebral affections, especially epilepsy, also in dyspep., and diseases of stomach and liver.

Decoct.—employed as mouth-wash in cases of aphthae.

Fruit—carmin., given in diar., dysen., haemor., internal ulceration and rheumatism.

Essen. oil of leaves—antisep., local application in rheumatism.

Leaf—applied in scorpion-sting.

Essen. oil (*Arch. Pharm., Berl.*, 1889, 174; *Ber. Schimmel u. Co., Lpz.*, 1924, 61; 1929, 65; *J. chem. Soc.*, 1864, 1; 1872, 1; *Chemikerztg*, 1905, 1031; 1910, 857); myrlenole (*Parfums de Fr.*, 1930, 336; 1932, 315; *Ber. Schimmel u. Co., Lpz.*, 1931, 44; 1933, 41; *Gazz. chim. ital.*, 1933, 666; *Chem. Zbl.*, 1934, I, 854).

Indigenous from the Mediterranean to N.W. Himalayas. Often grown in gardens throughout India.

MYTRAGYNA (*Rubiaceae*)

M. parvifolia Korth.

H. & Bo.–*Kaddam*; Garhwal–*Phaldu*; P.–*Kalam*; Tam.–*Kadambai*; Tel.–*Nirukadimi*; Mal.–*Sirakatampa.*

Bark and root—given in fever and colic.

Bark—ground and made into a paste applied for muscular pains.

Throughout the drier parts of India.

MYXOPYRUM (*Oleaceae*)

M. smilacifolium Blume

M.–*Chathuramallikei.*

Leaves—used as a remedy in asthma, cough, rheumatism and nervous complaints.

Sikkim Terai, Assam, Sylhet, Cachar, Chittagong, South Deccan Peninsula and Anamalai Mts.

NANNORHOPS (*Palmae*)

N. ritchieana H. Wendl.

H.–*Mazari, Mazri.*

Leaves—given in dysen. and diar.; purg.; chiefly used in veterinary medicine.

Punjab, Sind, Waziristan and Baluchistan.

NARCISSUS (*Amaryllidaceae*)

N. tazetta Linn.

P.–*Nargis.*

Root—emetic, used to relieve headache.

Alk. tazettine (*Ber. dtsch. chem. Ges.*, 1934, 1501; 1936, 1086; *Chem. Abstr.*, 1936, 5228); bulbs yield alk. suisenine (*J. agric. chem. Soc. Japan*, 1939, 128; *Chem. Abstr.*, 1939, 6319).

Cultivated in gardens in India.

NARDOSTACHYS (*Valerianaceae*)

N. jatamansi DC.

S., H. & B.–*Jatamansi*; Bo.–*Balacharea*; Tam.–*Jatamashi*; Garhwal–*Masi*; Tel.–*Jatamamshi*; Mal.–*Jetamanshi*; Kash.–*Bhutijatt.*

Root—arom., bitter, tonic, stim., antisp., employed for treatment of epilepsy, hysteria and convulsive affections; used in palpitation of heart; subst. for Valerian; useful in intestinal colic.

Essen. oil (Dymock, Warden & Hooper, II, 237; *Ber. Schimmel u. Co., Lpz.*, 1907, Oct., 65; 1926, 75); a crystalline acid, jatamansic acid, has been isolated (*J. sci. industr. Res.*, 1951, 48B); oil has weak anti-bacterial and anti-protozal activities (*Indian J. med. Res.* 1954, 385),*

Alpine Himalayas, 11,000-15,000 ft., extending eastwards from Kumaon to Sikkim, 17,000 ft., and Bhutan.

NAREGAMIA (*Meliaceae*)

N. alata W. & A.

Bo. & Marathi-*Pitpapra*; Kan.-*Nelanaringa*; Mal.-*Nilanarakam*; S.-*Kandalu*; Uriya-*Pittamari.*

Root—emetic, cholag., expect., useful in acute dysen.

Leaves and stems—in decoct. given with bitters and aromatics for billiousness.

Plant—used in rheumatism and itch.

Root bark contains alk. naregamin (*Arch. Pharm., Berl.*, 1888, 36; *Chem. Zbl.*, 1916, I, 892; *Bull. Sci. pharm.*, 1915, 22, 267).

Konkan, N. Kanara, W. Ghats of Madras State in all districts up to 3,000 ft.

NASTURTIUM (*Cruciferae*)

N. fontanum Aschers. syn. *N. officinale* R. Br.

Kumaon—*Piriya halim*; Deccan—*Lutputian.*

Plant—appetizer, antiscor., stim., used in troubles of the chest.

Glucd., essen. oil, As 0·012 mg. in 100 g. dry plant (*C.R. Acad. Sci., Paris*, 1912, 893; *Ber. dtsch. chem. Ges.*, 1899, 2335; *Arch. Pharm., Berl.*, 1899, 617; *Bull. Soc. chim., Paris*, 1896, 797; *Lancet*, 1928, 97; Wehmer, I, 414).

Baluchistan, Waziristan, Punjab and many hill stations.

N. indicum DC.

Plant—considered diur., stim. and antiscor. in Indo-China.

Seeds—laxt., also used in asthma.

Throughout India in wet places from Ceylon to Kashmir and Mishmi, Bengal, Assam and Chittagong.

N. montanum Wall.

Plant—antiscor.

N.W. India, up to 7,000 ft., Sikkim and Khasia Hills.

N. officinale R. Br.; see **N. fontanum** Aschers.

N. palustre DC.

Plant—antiscor.

N.W. India, temperate Himalayas, up to 10,000 ft., Assam and Bengal.

NAUCLEA (*Rubiaceae*)

N. cadamba Roxb.; see **Anthocephalus indicus** A. Rich.

N. missionis W. & A.

S.-*Jalamdasa*; Kan.-*Anavu*; Mal.-*Attuvanni*; Tam.-*Attuvanji*; M.-*Nirvanji.*

Powdered bark or decoct.—used in leprosy, ulcers, rheumatism and constip.

N. Kanara, Western coast of Madras State, in Malabar and Travancore, up to 1,500 ft.

N. orientalis Linn. syn. *Sarcocephalus cordatus* Miq.; *S. horsfieldii* Miq.

Burm.-*Mau.*

Bark—tonic, antipyr.

Alk. (*Meded. PlTuin, Batavia*, 1898, 92).

Burma, Ceylon, Malaya, Philippine Islands and N. Australia.

N. sessilifolia Roxb.

B.-*Kum.*

Bark—used for bowel complaints and fever.

Cachar and Chittagong.

NELUMBIUM (*Nymphaeaceae*)

N. speciosum Willd.; see **Nelumbo nucifera** Gaertn.

NELUMBO (*Nymphaeaceae*)

N. nucifera Gaertn. syn. *Nelumbium speciosum* Willd.

S. & Bo.-*Kamala*; H.-*Kanwal*; Mal. & Tel.-*Tamara*; Marathi-*Kamal*; P.-*Kanwalkakri*; B.-*Kombol, Padma*; Tam.-*Ambal.*

Flowers—cooling, used as astrin. in diar., also cholera, in fever and diseases of the liver; recommended as a cardiac tonic.

Seeds—used to check vomiting, given to children as diur., and refrig.; form a cooling medicine for skin diseases and leprosy; considered as antid. to poisons.

Filaments—considered astrin. and cooling, useful in burning sensation of the body, bleeding piles and menor.

Root—in powder form prescribed for piles as demulc., also for dysen. and dyspep.; used as a paste in skin affections and ringworm.

Leaf, pedicles and embryo contain alk. nelumbine (*Biol. Zbl.*, 1904, 240; *Meded. PlTuin, Batavia*, 1899, 125); alk. nupharine in 8 mg./kg. dose to a dog causes lasting stimulation of respiration; impaired respiration is restored and stimulated (*C.R. Acad. Sci., Paris*, 1941, 386; *Chem. Zbl.*, 1942, 1595; *Chem. Abstr.*, 1943, 6745).*

Throughout the warmer parts of India.

NEPETA (*Labiatae*)

N. cataria Linn.

Dried leaves and flowering tops—arom., carmin., tonic, diaphor., refrig., emmen., antisp., stim.

Leaves—chewed to relieve toothache.

Volatile oil and tannin (U.S.D., 240).

Kashmir, N.W. Frontier Province, Kurrum Valley and Baluchistan.

N. ciliaris Benth.

P.–*Zufa yabis.*

Plant—given in *sherbet* for fever and cough.

Western temperate Himalayas, from Kashmir to Garhwal, 6,000-8,000 ft.

N. elliptica Royle ex Benth.

P.–*Tukhmmalanga.*

Seeds—one drachm infused in cold water used in dysen.

Western temperate Himalayas, from Kashmir to Kumaon, 5,000-8,000 ft.

N. glomerulosa Boiss.

Baluchi–*Chanjanbutai.*

Plant—used as cure for pneumonia and itch.

Punjab frontier to Baluchistan.

N. hindostana (Roth) Haines syn. *N. ruderalis* Hook. f.

P.–*Badrangboya, Billilotan*; Nep.–*Niasbo.*

Plant—largely used in fevers and as cardiac tonic, internally taken in gonor.

Decoct.—used as gargle in sore throat.

Hilly parts of the Punjab, Bengal, Bihar, Kumaon, N.W. Frontier Province, Rajputana, Madhya Bharat, Deccan and Konkan.

N. ruderalis Hook. f.; see **N. hindostana** (Roth) Haines

NEPHELIUM (*Sapindaceae*)

N. lappaceum Linn.

Fruit—considered stomch. and anthelm.in China; used as astrin. and febge. in Cambodia.

Cultivated everywhere in Malay Peninsula, often found as an escape in forests..

N. litchi Camb.; see **Litchi chinensis** Sonner.

N. longana Camb.; see **Euphoria longan** Steud.

NEPTUNIA (*Leguminosae*)

N. oleracea Lour.

H.–*Lajalu*; B. & Bo.–*Panilajak*; Tam.–*Sundaikkirai*; Tel.–*Nidrayam*; Mal.–*Nittiloddavaddi.*

Plant—refrig., astrin.

In tanks throughout India.

NERIUM (*Apocynaceae*)

N. indicum Mill. syn. *N. odorum* Soland.

S.–*Karavira*; H. & P.–*Kaner*; B.–*Karabi*; Bo.–*Kanhera*; Tam., Tel. & Mal.–*Karaviram.*

Plant—poisonous.

Root—powerful resolv. and attenuant, used externally; beaten into a paste with water applied to chancres and ulcers on the penis.

Decoct. of leaves—used to reduce swellings.

Oil prepared from root-bark—used in skin diseases of a scaly nature, and in leprosy.

Glucd. (*Chem. Zbl.*, 1881, 218; *Proc. chem. Soc., Lond.*, 1901, 92); root, bark and seeds contain the toxic principles neriodorin, neriodorin and karabin (*Pharm. J.*, 1880, 873; *Bull. Acad. Sci. Unit. Prov.*, 1934, 209; *Indian med. Gaz.*, 1901, 287, 408); like neriodorin, karabin is a powerful cardiac poison and acts on the heart in a somewhat similar manner as digitalin (*Indian med. Gaz.*, 1901, 287, 408); glucd. odorin causes paralysis of mice and rabbits, depresses respiration; lethal dose for frogs 300-350, mice 400-450 and rabbits 150-200 mg./kg. (*J. Okayama med. Soc.*, 1938, 2426; *Japan J. med. Sci.*, IV, No. 1, *Abstr.* 37, 1939; *Chem. Abstr.*, 1940, 7434); leaves contain a compound giving reactions described for rutin (*J. pharm. Soc. Japan*, 1949, 321; *Chem. Abstr.*, 1950, 1977); leaves, flowers, bark and woody parts show cardiotonic potency and lethal dose comparable to digitalis (*Sci. Technol. China*, 1948, 35; *Chem. Abstr.*, 1950, 6573).*

Upper Gangetic Plain, Himalayas from Nepal westwards to Kashmir up to 6,500 ft., Salt Range, Waziristan, Baluchistan, Central and S. India. Extensively cultivated throughout the greater part of India.

N. odorum Soland.; see **N. indicum** Mill.

N. oleander Linn.

Plant—poisonous.

Leaves contain the glucds. neriin and oleandrin; leaves yield another glucd. folinerin; used like digitalis; 1 mg. corresponds to 1,200 frog units (*Klin. Wschr.*, 1936, 1677; *Chem. Abstr.*, 1937, 4398; *Ber. dtsch. chem. Ges.*, 1937, 1547, *Chem. Abstr.*, 1937, 6666); folinerin and oleandrin are the same (*Ber. dtsch. chem. Ges.*, 1937, 1554; *Chem. Abstr.*, 1937, 6667); bark yields glucd. cortenerin, resembling folinerin but about half as toxic (*Farmatsiya*, 1940, No. 11, 27; *Chem. Abstr.*, 1941, 5256); isolated frog heart stimulated by folinerin in concentrations of 0·0001-4·0 p.p.m.; contracts isolated guinea-pig's uterus in low concentrations (*Z. ges. exp. Med.*, 1941, 279; *Chem. Zbl.*, 1942, 310; *Chem. Abstr.*, 1943, 4799); absorption of glucd. from digestive tract rapid; stimulates diuresis; little cumulative effect; tentative dose 0·4 mg.; action between digitalis and strophanthus (*Rev. clin. esp.*, 1940, 516; *Rev. sudamer. Endocr.*, 1942, 35; *Chem. Abstr.*, 1943, 5786); folinerin is 2-3 times more active than digitoxin; hearts of cats, dogs and rabbits are more sensitive than frog (*Pharm. & Toxic.*, 1941, 65; *Chem. Zbl.*, 1943, 1205; *Chem. Abstr.*, 1944, 5299); Palestinian plant yields a glucd. foliandrin different from the glucosides from other species, but resembles strophanthus glucd. (*Brit. Heart J.*, 1944, 149; *Chem. Abstr.*, 1945, 557); minimum lethal dose of oleandrin for cats is 0·66 mg./kg.; 1 mg. represents 468 frog doses; its biological activity is about half of folinerin or digitoxin (*Pharm. & Toxic.*, 1946, 41; *Chem. Abstr.*, 1947, 5634).

Mediterranean region, sometimes met with in Indian gardens.

N. tomentosum Roxb.; see **Wrightia tomentosa** Roem. & Schult.

NEURACANTHUS (*Acanthaceae*)

N. sphaerostachyus Dalz.

Bo.–*Ghosvel*; Gujarati & Marathi–*Ganthera*.

Root—powdered and made into a paste used as cure for ringworm; administered in that form of indign. in which fatty or saponaceous grape-like masses are observed in the stools.

Konkan, W. Ghats, Deccan and S. Mahrata Country.

NICANDRA (*Solanaceae*)

N. physaloides Gaertn.

Plant—diur.

Alcoholic extract of the fresh plant yielded 0·65% of a bitter principle named nicandrin (*Arch. Pharm., Berl.*, 1951, 129; *Chem. Abstr.*, 1951, 10507).

Subtemperate Himalayas, 3,000-6,000 ft., from Kashmir to Sikkim, introduced; Mts. of W. Deccan Peninsula, introduced.

NICOTIANA (*Solanaceae*)

N. rustica Linn.

H. & B.–*Vilayeti tamaku*; Bihar–*Kalkatiya tamaku*; P.–*Kakkar tamaku*.

Leaves—uses similar to *N. tabacum*.

Alk. nicotine (*Bull. Soc. chim., Paris*, 1922, 125; *Chem. Zbl.*, 1915,. II, 233); choline (*Z. Untersuch. Lebensmitt.*, 1932, 620; *Chem. Zbl.*, 1932 II, 2123); when grown in greenhouse, leaves contain 6·6-8·8% nicotine calculated on dry basis; when grown in field the same variety contains 1·54-2·64 nicotine (*Bull. Ky. agric. Exp. Sta.*, 1944, 8; *Chem. Abstr.*, 1946, 2591); leaves contain anabasine, nor-nicotine; stem contains nicotine; root contains nicotine, anabasine (*Dokl. obsch. Sobr. Ak. Nauk S.S.S.R.*, 1948, 279; *Chem. Abstr.*, 1948, 6494).

Cultivated in the W. Punjab, Baluchistan, Bengal and other parts of India.

N. tabacum Linn.

H. & Bo.–*Tambaku*; B.–*Tamak*; P.–*Tamaku*; S.–*Tamakhu*; Tam.–*Pugaiyilay*; Tel.–*Pogaku*; Mal.–*Pokala*.

Leaves—sedative, narcotic, emetic, antisp., used in rheumatic swelling, skin diseases, for scorpion-sting and as fish poison.

Ba (*J. Amer. chem. Soc.*, 1913, 826); oxalic acid (*Ber. dtsch. pharm. Ges.*, 1909, 292); leaves contain glucd. tahacinin, tahacilin (*J. agric. chem. Soc. Japan*, 1932, 404) and 0·25-1·7% glucd. isoquercitrin (*J. Pharm. chim., Paris*, 1937, 445; *Chem. Abstr.*, 1938, 6805); principal alk. is nicotine; others in lesser amount are nicoteine, nicotimine, anabasine, nor-nicotine, etc. (U.S.D., 1632); nicotine 2·4% (*J. chem. Engng. China*, 1937, 255; *Chem. Abstr.*, 1938, 5578).

Cultivated throughout India.

NIGELLA (*Ranunculaceae*)

N. sativa Linn.

S.–*Krishnajiraka*; B.–*Kalijira*; H.–*Kalonji, Kalajira*; Bo.–*Kalenjire*; Tam.–*Karunjiragam*; Tel.–*Nullajilakara*; Mal.–*Karunshiragam*.

Seeds—stim., carmin., diur., emmen., galact.; useful in mild cases of puerperal fever; reduced to powder and mixed with sesamum oil much used as an external application in eruptions of the skin; for scorpion-sting.

Seeds contain essen. oil, tox. glucd. melanthin, bitter substances (*J. chem. Soc.*, 1880, 718; *Pharm. J.*, 1882, 681; 1884, 863; *Arch. exp. Path. Pharmak.*, 1883, 440; *Ber. Schimmel u. Co., Lpz.*, 1895, April, 74; 1913, Oct. 97); 1·5% essen. oil, and 35% fixed oil and amorphous glycosidal saponin melanthin (U.S.D., 1532); the amount of saponin is variable (*Jb. wiss. Bot.*, 1937, 710; *Chem. Abstr.*, 1938, 9177); also 1% melanthigenin (*J. chem. Soc.*, 1943, 70; *Chem. Abstr.*, 1943, 3441); an amorphous compound giving reactions of saponin isolated (*Univ. Allahabad*

Studies, 1946, *chem. Sec.* 1; *Chem. Abstr.*, 1947, 6672).*

Punjab, Bihar and other parts of India, cultivated and an occasional weed of cultivation.

NIPA (*Palmae*)

N. fruticans Wurmb.

B. & H.–*Gulga*; Gujarati–*Pardeshitadio*; Tel.–*Nipamu*.

Pounded leaves—used as remedy for bites of centipedes and as cure for ulcers in the Philippine Islands.

Juice contains 15% saccharose (*Bull. imp. Inst., Lond.*, 1902, 593).

Sundarbans.

NOTHOPANAX (*Araliaceae*)

N. fruticosus Miq.; see **Polyscias fruticosa** Harms

NOTONIA (*Compositae*)

N. grandiflora DC.

Marathi–*Wanderroti*; Bo.–*Gaidar*; Tel.–*Kundelucheviyaku*.

Fresh stems—used in form of an extract as a preventive of hydrophobia.

Konkan, Deccan and W. Ghats of Bombay State, S. Deccan and Carnatic of Madras State.

NYCTANTHES (*Oleaceae*)

N. arbortristis Linn.

S.–*Sephalika*; P., H. & B.–*Harsinghar*; Bo.–*Harsingara*; Tam.–*Pavala-malligai*; Tel.–*Sepali*; Mal.–*Mannapu*.

Leaves—useful in fever and rheumatism.; fresh juice given with honey in chr. fever.

Decoct. of leaves—prepared over a gentle fire, recommended as a specific for obstinate sciatica.

Expressed juice of leaves—cholag., laxt., mild bitter tonic, given with a little sugar to children as remedy for intestinal worms.

Flowers yield crystalline nyctanthin, leaves alk., resins, peppermint-like oil, amorphous glucd. (Dymock, Warden & Hooper, II, 378; *J. chem. Soc.*, 1907, 1); leaves yield glucd., 1% essen. oil (*Bull. Acad. Sci. Unit. Prov.*, 1933, 83).

Outer Himalayan ranges from the Chenab to Nepal, Assam, Bengal, Madhya Bharat southwards to the Godavari. Cultivated in many parts of India.

NYMPHAEA (*Nymphaeaceae*)

N. alba Linn.

Kash.–*Brimposh, Nilofar*; Bo.–*Pandharen-kamal*.

Root and stock—astrin., slightly narcotic, administered in dysen.

Flowers—anti-aphrodis.

Infusion of flower and fruit—given in diar. and as diaphor.

Alk. nupharine (*Arch. Pharm., Berl.*, 1882, 589; *Chem. News*, 1915, 289, 203; *Chem. Zbl.*, 1934, II, 2834); dried roots yield alk. nymphaeine; toxic with affinity for nervous system (*Cas. csl., Lek.*, 1935, 223; *Chem. Abstr.*, 1936, 1379, 2196); root contains alk. nymphaeine and several astrin. principles (U.S.D., 1534); flowers contain cardiac glucd. nymphalin [*Bull. int. Acad. cracovie* (*Acad. pol. Sci.*), 1934, 437; *Ber. ges. Physiol.*, vol. 85, 220; *Chem. Abstr.*, 1937, 5106]; blossoms contain alk. similar to nupharine; administered to frogs, mice, rats, guinea-pigs and pigeons produce paralysis of the cerebrum, cause death by respiratory poisoning; flowers and rhizomes yield two alks.; both showing sedative action in small doses [*Bull. int. Acad. Cracovie* (*Acad. pol. Sci.*), 1935, 539; 1936, 61; *Ber. ges. Physiol.*, vol. 95, 123; vol. 100, 156; *Chem. Abstr.*, 1938, 9279]; minimum effective and lethal doses of nymphaein for frogs 30 and 50 mg./kg. for mice and pigeon 60 and 80 mg./kg.; warm-blooded animals die from central respiratory paralysis (*Cas. Lek. ces.*, 1937, 261; *Ber. ges. Physiol.*, vol. 102, 326; *Chem. Abstr.*, 1938, 9282).

Kashmir, in lakes.

N. pubescens Willd.

M.–*Alli*.

Powdered root—used for piles as demulc.; also for dysen. and dyspep.

Flowers—astrin., cardiotonic.

All over India in the warmer parts.

N. rubra Roxb.

B.–*Raktakambal*; H.–*Chota-kanval*; S.–*Arunakamala*; Gujarati–*Nilophal*; Tam.–*Allitamarai*; Tel.–*Allitamara*; Mal.–*Ampala*.

Powdered rootstock—given in dyspep., diar. and piles.

Decoct. of flowers—prescribed in palpitation of heart.

Common throughout India in the warmer parts.

N. stellata Willd.

S.–*Nilotpala*; Marathi–*Krishna kamal*; H.–*Nilkamal*; B.–*Nil-sapla*; Bo.–*Upliakamal*; Tel.–*Nitikulava*; Mal.–*Sitambel*.

Uses similar to *N. rubra*.

Warmer parts of India.

NYMPHOIDES (*Gentianaceae*)

N. indicum Kuntze syn. *Limnanthemum cristatum* Griseb.

Sing.–*Hinambala*.

Plant—used as subst. for chiretta, in fever and jaundice.

Throughout India in tanks and backwaters.

N. peltatum Kuntze syn. *Limnanthemum nymphaeoides* Hoffm. & Link
P.–*Kuru*, *Khairposh*.

Fresh leaves—used in periodic headache.

W. Himalayas and Kashmir, 6,000-9,000 ft.

OCHNA (*Ochnaceae*)

O. pumila Ham. ex D. Don
Santh.–*Champabaha*.

Root—used as antid. to snake-bite; its decoct. given in menstrual complaints, also for consumption and asthma.

Foot of Himalayas from Kumaon to Sikkim, Bihar, Chota Nagpur (very likely not in Bombay and Madras States).

O. squarrosa Linn.
Bo.–*Kanakchampa*; S.–*Kanaka champa*; Kan.–*Ramatanachampaka*; Tam.–*Sherundi*; Tel.–*Sunaru*.

Root—uses similar to that of *O. pumila*.

Bark—digest. tonic.

Leaves—boiled and used as emol. cataplasm.

Assam and Western Peninsula.

OCHRADENUS (*Resedaceae*)

O. baccatus Del.
Baluchistan—*Kalirram*, *Kirmkush*.

Twigs, leaves and flowers—fried, ground to a powder, mixed with little *neshar* and applied to dry wounds and sores to kill maggots, etc., in Baluchistan.

Sind and Baluchistan.

OCHROCARPUS (*Guttiferae*)

O. longifolius Benth. & Hook. f.
S.–*Punnag*; H. & B.–*Nagkesar*; Bo.–*Suringi*; Kan.–*Surungi*; Mal.–*Surampunna*; Tam.–*Surabunnai*; Tel.–*Surapunnagamu*.

Flower-buds—astrin., arom.

Flowers—stim., carmin., useful in some forms of dyspep. and in haemorrhoids.

Essen. oil (*Pharm. J.*, 1913, 369).

W. Ghats of the Konkan, N. Kanara, Malabar and Coimbatore; cultivated in the N. Circars.

OCIMUM (*Labiatae*)

O. americanum Linn. syn *O. canum* Sims.
H. & B.–*Kala tulshi*; S.–*Ajaka*; Kan.–*Ramatulasi*; M.–*Nayttulsi*; Mal.–*Katturamatulasi*; Tam.–*Ganjamkorai*; Tel.–*Kukkatulasi*.

Leaves—made into paste used in parasitical skin diseases and applied to the finger and toe-nails during fever when the extremities are cold.

Essen. oil (*Ber. Schimmel u. Co., Lpz.*, 1903, April, 33; 1925, 54; 1929, 70; 1934, 51); plant yields 0·6% essen. oil containing 16-25% true camphor (*E. Afr. agric. J.*, 1936, 302, 308; *Chem. Abstr.*, 1936, 6510); entire plant yields 0·5-0·8% essen. oil containing 65% camphor (*Drug Cosmet. Ind.*, 1938, 546; *Chem. Abstr.*, 1939, 311; *Farm. Zh.*, 11, No. 1, 1938, 27; *Chem. Abstr.*, 1939, 316); mature plant (leaves, soft twigs and flowering tops) yield 0·38% essen. oil containing citronellal 15·7%, *l*-linalool 10·2%, methyl-cinnamate, citronellic acid and eugenol (*Perfum. essent. Oil Rec.*, 1938, 402; *Chem. Abstr.*, 1939, 2651); air-dried plant yields 1·85% essen. oil containing 0·84% borneol (*Farmatsiya i Farmakol.*, No. 4, 1937, 17; *Khim. ref. Zh.*, No. 3, 1938; *Chem. Abstr.*, 1939, 5594); average yield of essen. oil 0·7% containing over 68% aldehydes calculated as citral; Methylheptenone, citronellal, linalool, geraniol and citronellol; a good source of citral (*Proc. nat. Acad. Sci. India*, 1938, 120; *Chem. Abstr.*, 1939, 5992); essen. oil fractionated and following products obtained: dipentene, terpinolene, crithmene, limonene (about 15%). *d*-α-pinene, sabinene, camphene (about 10%), caryophyllene (about 1%), traces of phenol and acetic acid (*Farmatsiya i Farmakol.*, No. 5, 1938, 13; *Khim. ref. Zh.*, Nos. 11-12, 1938, 158; *Chem. Abstr.*, 1939, 8914); leaves and tender stems yield on average 0·6-0·7% essen. oil containing linalool 10·9, esters 4·8, geraniol and citronellol 7·3, methylheptenone 2·4, citral 60·0 and citronellal 7·3% (*Indian Soap J.*, 1940, 248; *Chem. Abstr.*, 1940, 6015).

Plains and lower hills of India.

O. basilicum Linn.
S.–*Munjariki*; H. & B.–*Babuitulsi*; Bo. & Marathi–*Sabza*; Tam.–*Tirnutpatchi*; Tel.–*Bhutulasi*; Mal.–*Tirunitru*; P.–*Babri*.

Flowers—carmin., diur., stim., demulc.

Seeds—mucilaginous, given in infusion in gonor., dysen., and chr. diar.

Root—used in bowel complaints of children.

Leaves—useful in treatment of croup, for which the warm juice with honey is given.

Essen. oil (*J. Soc. chem. Ind., Lond.*, 1918, 604; *Chem. Zbl.*, 1911, I, 223; *Ber.*

Schimmel u. Co., Lpz., 1903, April, 33; 1925, 54; 1929, 70; 1934, 51; *Perfum. essent. Oil Rec.*, 1933, 2); fresh flowering herbs yield essen. oil containing alcohols (as linalool) 65·3%, small amounts of cineole, eugenol, sesquiterpenes and *d*-terpene (*Amer. Perfum.*, 1935, 69; *Chem. Abstr.*, 1936, 1941); mature plant yields 0·4% essen. oil (*Perfum. essent. Oil Rec.*, 1938, 89; *Chem. Abstr.*, 1938, 4278); leaves yield 0·5% essen. oil containing methyl cinnamate 56·67, *l*-linalool 4·36 and terpinene 80·85% (*Indian Soap. J.*, 1946, 210; *Chem. Abstr.*, 1948, 4717); essen. oil from plant during rains and dry season contains 57·14 and 69·66% methyl cinnamate and 20·55 and 11·32% linalool respectively (*Indian J. Pharm.*, 1950, 132; *Chem. Abstr.*, 1950, 8602).*

Indigenous to the lower hills of the Punjab. Cultivated throughout the greater part of India.

O. canum Sims; see **O. americanum** Linn.

O. caryophyllatum Roxb.; see **O. basilicum** Linn.

O. gratissimum Linn.

S.–*Vriddhatulasi*; H. & B.–*Ramtulsi*; Bo.–*Ramatulasa*; Tam.–*Elumichantulasi*; Tel. & Mal.–*Ramatulasi*; P.–*Banjere*.

Plant—arom. baths of fumigations prepared with it recommended in the treatment of rheumatism and paralysis; a strong decoct. effectual in the aphthae of children.

Decoct. of leaves—useful in seminal weakness, remedy in gonor.

Seeds—given in headache and neuralgia.

Essen. oil, thymol, eugenol, methyl chavicol (*Bull. imp. Inst., Lond.*, 1918, 38; *J. Soc. chem. Ind., Lond.*, 1921, 164; *Ber. Schimmel u. Co., Lpz.*, 1924, 62; 1934, 51); essen. oil containing eugenol, thymol (*Chem. Zbl.*, 1933, II, 3492); leaves and blossoms yield 0·3% essen. oil containing 70% eugenol, 7-8% myrcene and 20-30% monocyclic terpenes (*Proc. Lenin Acad. agric. Sci.*, No. 6, 1940, 15; *Khim. ref. Zh.*, No. 9, 1940, 107; *Chem. Abstr.*, 1943, 722; *Bull. imp. Inst., Lond.*, 1941, 217; *Chem. Abstr.*, 1946, 7520); leaves and soft stem 0·1% essen. oil containing citral 66·6, geraniol 25·7 and citronellol 2·8% (*Indian Soap J.*, 1944, 19; *Chem. Abstr.*, 1948, 3911).

Throughout India; often cultivated.

O. longiflorum Buch.-Ham.; see **Orthosiphon stamineus** Benth.

O. pilosum Willd.; see **O. basilicum** Linn.

O. sanctum Linn.

S., Tam., Tel. & Mal.–*Tulasi*; H. & B.–*Tulsi*; Bo.–*Tulasa*.

Leaves—expect.

Juice of leaves—diaphor., antiper. and stimulating expect.; used in catarrh and broncht.; dropped into the ear as remedy for earache.

Infusion of leaves—used as stomch. in gastric disorders of children and in hepatic affections.

Dried leaves—powdered and used as snuff in ozaena.

Seeds—demulc., given in disorders of the genito-urinary system.

Root—given in decoct. as a diaphor. in malarial fevers.

Fresh roots, stems and leaves—bruised and applied to the bites of mosquitoes.

Plant—in snake-bite and scorpion-sting.

Essen. oil (*Ber. Schimmel u. Co., Lpz.*, 1911, April, 87; 1912, April, 95); leaves yield 0·7% essen. oil containing 71·3% eugenol, 3·2% carvacrol, 20·4% methyl eugenol and 1·7% caryophyllene; used as an expect., antisep. and insect repellent (*Proc. Indian Acad. Sci.*, vol. 9A, 1939, 72; *Chem. Abstr.*, 1940, 6015).

Throughout India, cultivated but doubtfully indigenous.

ODINA (*Anacardiaceae*)

O. wodier Roxb.; see **Lannea grandis** (Dennst.) Engl.

OLAX (*Olacaceae*)

O. nana Wall.

Santh.–*Merommet*; Gujarati–*Himi*, *Shigroti*.

Fruit—used medicinally.

Punjab, Kumaon, Bihar, Bengal, Assam, Kathiawar, N. Circars and Nepal.

O. scandens Roxb.

H.–*Dheniani*; B.–*Kokoaru*; Bo. & Marathi–*Harduli*; Kan.–*Karadu*; Tam.–*Malliveppam*; Tel.–*Murikimalle*.

Bark—used in a preparation given in anaemia.

W. Ghats of Bombay State, Deccan, Carnatic and N. Circars of Madras State, sub-Himalayan tract of Kumaon, Oudh and Bihar.

OLDENLANDIA (*Rubiaceae*)

O. auricularia K. Schum. syn. *Hedyotis auricularia* Linn.

B.–*Muttialata*; Bo.–*Dapoli*; M.–*Kudal-churiki*.

Plant—emol., used in dysen. and cholera.

Alk. hedyotine (*Arch. Pharm., Berl.*, 1933, 485); stem and root contain

0·001% alk. auricularine and another alk. (*J. Indian chem. Soc.*, 1942, 389; *Chem. Abstr.*, 1943, 4073).*

Almost all over India.

O. biflora Linn.

S. & B.–*Khet papra*; H.–*Daman-papra*; M.–*Parpadagam*.

Plant—used in remittent fever, gastric irritation and nervous depression.

Alk. (Dymock, Warden & Hooper, II, 199).*

Carnatic, E. Bengal, Sikkim, Sylhet.

O. corymbosa Linn.

B.–*Khet papra*; H.–*Daman papar*; S.–*Parpata*; Marathi–*Papti*.

Decoct. of plant—given in remittent fever with gastric irritation and nervous depression.

Plant—given in jaundice and diseases of liver and used as anthelm.

Juice—applied in burning of the palms of hands and soles of feet from fever.

Throughout India.

O. diffusa Roxb.

Decoct. of plant—used in biliousness, impure blood, fever and gonor.

Throughout India.

O. herbacea Roxb.

Decoct. of plant—used in mild cases of malarial fever of a low remittent type.

Throughout India in hilly districts.

O. heynei Hk. f.

M.–*Nonganam-pillu*.

Plant—specific for snake-bite.

Leaves—used in asthma, rheumatism and fever.

Mountainous parts of India from Kumaon, 5,500 ft., to the Khasia Hills, 4,000 ft., and southwards to Ceylon.

O. umbellata Linn.

H.–*Chirval*; B.–*Surbuli*; Mal.–*Chayaver*; Tam.–*Saya*; Tel.–*Chiriveru*.

Leaves—expect., given in consumptive and asthmatic affections.

Leaves and root—expect., prescribed in bronchial catarrh, broncht. and asthma.

Root—in snake-bite.

Alizarine (*Proc. chem. Soc., Lond.*, 1907, 288; *J. chem. Soc.*, 1893, 1160).

Orissa, Bengal, Deccan, Circars and Carnatic.

OLEA (*Oleaceae*)

O. cuspidata Wall.

H. & P.–*Kau*; Bo.–*Khau*; Almora–*Kaphlainj*; Garhwal–*Bairbanj*.

Oil from fruit—rubft.

Leaves and bark—bitter astrin., used as antiper. in fever and debility.

Leaves—considered as a cure for gonor.

Gum—used mixed with antimony in applications to the eye.

N.W. Himalayas and Kashmir, 2,000-6,000 ft., Salt Range, Trans-Indus, Baluchistan and Waziristan.

O. dioica Roxb.

B.–*Attajam*; Bo.–*Parjamb*; Tam.–*Koli*; Mal.–*Vetila*; M.P.–*Kulumb*; Marathi–*Karambu*.

Bark—febge.

Lower hills of Assam and Bengal and Western Peninsula.

O. europaea Linn.

Arab.–*Zaytoun*; Kan.–*Julipe*; Tam.–*Saidun*.

Bark—bitter, astrin., reputed as subst. for cinchona.

Oil from the pericarp—demulc., emol., and laxt.

Gum-like substance from the tree—vulnerary.

Fruits contain glucd. oleuropein, fatty oil (*J. chem. Soc.*, 1908, 93; *Proc. chem. Soc., Lond.*, 1908, 117; *C.R. Acad. Sci., Paris* 1908, 533; *J. Pharm. Chim., Paris*, 1908, 303; 1910, 292); leaves given orally to rabbits produce 17-23% decrease in blood sugar (*C.R. Soc. Biol., Paris*, 1942, 810; *Chem. Abstr.*, 1945, 3068).

Baluchistan.

O. glandulifera Wall.

P.–*Gulili*; Kumaon & Garhwal–*Gair*; Almora–*Garura*.

Bark and leaves—astrin., used as antiper. in fever.

Glucd. (Dymock, Warden & Hooper, II, 379; *Meded. PlTuin, Batavia*, 1897, 29; 1899, 132).

N.W. Himalayas, 2,000-6,000 ft., from Kashmir to Nepal, N. Circars, hills of Ganjam and Vizagapatam, Deccan, Mysore and W. Ghats of Madras State.

OLIGOMERIS (*Resedaceae*)

O. subulata (Del.) Boiss.

Kalat–*Shataki*.

Plant—pounded, and the juice thus extracted is used by women to apply to their breasts to keep them soft in Kalat.

Sind, Baluchistan and the Punjab.

ONOSMA (*Boraginaceae*)

O. bracteatum Wall.

B. & Urdu–*Gaozaban*; H.–*Shankhahuli*.

Plant—tonic, alter., in decoct. much used in rheumatism, syphilis and leprosy; good refrig. and demulc., useful for relieving excessive thirst and restlessness in febrile excitement and also

useful in relieving functional palpitation of the heart, irritation of the bladder and stomach and strangury.
Kashmir and Kumaon at 11,500 ft.

O. echioides Linn.
H. & P.–*Ratanjot*; S.–*Dhamani*.
Leaves—alter., in powder given to children as purg.
Flowers—used as cordial and stim. in rheumatism and palpitation of heart.
Root—bruised and used as application to eruptions.
Kashmir 5,000-9,000 ft., Kumaon and Baluchistan.

OPERCULINA (*Convolvulaceae*)

O. turpethum (Linn.) Silva Manso
syn. *Ipomoea turpethum* R. Br.
B.–*Dudh kalmi*; P.–*Nisot*; Bo.–*Nishotar*; H.–*Nisoth*; S.–*Triputa*; Tam.–*Sivadai*; Tel.–*Tellategadda*; Mal.–*Rochani*.
Root—purg., prescribed in scorpion-sting and snake-bite.
Resin—similar to jalap resin.
Glucd., turpethin (*Liebigs Ann.*, 1866, 41; Wehmer, II, 1009).
Throughout India up to 3,000 ft.; also occasionally grown in gardens.

OPHELIA (*Gentianaceae*)

O. angustifolia Don; see **Swertia angustifolia** Ham.

O. chirata Griseb; see **Swertia chirata** Ham. ex Wall.

O. multiflora Dalz.; see **Swertia decussata** Nimmo ex Grah.

OPHIOGLOSSUM (*Ophioglossaceae*)

O. vulgatum Linn.
Plant—used as vulnerary and as remedy for wounds in England and Spain.
N. India from Chamba to Sikkim, ascending up to 9,000 ft. on Mount Hattu and 2,000 ft. below Darjeeling; also in Chota Nagpur on the Parasnath Hill at 2,500 ft.

OPHIORRHIZA (*Rubiaceae*)

O. mungos Linn.
S. & Tel.–*Sarpakshi*; H.–*Sarahati*; B.–*Gandhanakuli*; Tam.–*Kirippurandan*; Mal.–*Avilpuri*.
Root—bitter, tonic, considered to be remedy against the bites of venomous snakes, mad dogs, etc.
Khasia Hills, up to 2,000 ft., W. Ghats from Wynaad to the Anamalais and the hills of Travancore and Tinnevelly and the Andamans.

OPOPANAX (*Umbelliferae*)

O. chironium Koch
H. & Bo.–*Juvashur*; B.–*Jaweshi*.
Gum resin—stim., antisp.
Essen. oil (*Parfum. mod.*, 1921, 82).
A native of S. Europe and Asia Minor.

OPUNTIA (*Cactaceae*)

O. coccinellifera Mill.
Tam.–*Puchikkalli*.
Fruit—emol. and bechic, refrig. and mildly laxt.
Plant—used as subst. for *O. dillenii*.
Introduced in India. A native of Mexico and Peru.

O. dillenii Haw.
S.–*Vidara*; H. & B.–*Nagphana*; Bo.–*Samar*; Tam. & Tel.–*Nagadali*; Mal.–*Nagamulla*.
Fruit—refrig., useful in gonor.; baked and given in whooping cough; in form of a syrup given to control spasmodic cough and expectoration.
Milky juice—purg.
Leaves—mashed up and applied as poultice to allay inflam. and heat; made into a pulp applied to the eyes in ophthalmia; heated and applied to boils to hasten suppuration.
Plant—in snake-bite.
(*J. Indian Inst. Sci.*, 1923, 173B).*
Introduced in India. Probably indigenous to Mexico.

O. monacantha Haw.; see **O. vulgaris** Mill.

O. nigricans Haw.
Tam.–*Nagadali*.
Plant—subst. for *O. dillenii*.
Introduced in India. Probably indigenous to Mexico.

O. stricta Haw.
Juice of fruit—applied to indolent ulcers.
Plant—subst. for *O. dillenii*.
Introduced in India. Probably indigenous to S. America.

O. vulgaris Mill. syn. *O. monacantha* Haw.
Tam.–*Sappattukkalli*; Tel.–*Nagajemudu*; Uriya–*Nagophenia*.
Fruit—laxt.
Stems—made into emol. cataplasms.
Plant—subst. for *O. dillenii*.
Introduced in India. Indigenous to Brazil and the Argentine.

ORCHIS (*Orchidaceae*)

O. latifolia Linn.
H.–*Salap*.
Tuber—expect., astrin., yields salep.
Glucd. (*J. Pharm. Chim., Paris*, 1914,

542; *C.R. Acad. Sci., Paris*, 1920, 435; 1925, 224); 0·0055% glucd. loroglossin (*Helv. chim. acta*, 1947, 2096; *Chem. Abstr.*, 1948, 2261).

W. temperate Himalayas, from Kashmir to Nepal and W. Tibet between 8,000-12,000 ft.

O. laxiflora Lam.

H. & B.–*Salap misri*; M.–*Shala misiri.*

Tuber—expect., astrin., nutri.

A native of the greater part of Central and Southern Europe, Turkey, Caucasus, Asia Minor, reaching Persia, Afghanistan and Tibet.

O. mascula Linn.

B.–*Salep misri*; Bo.–*Salum.*

Uses similar to *O. laxiflora.*

Glucd., bitter substance (*Chem. News*, 1915, 295; Wehmer, I, 185); glucd. loroglossin (*Helv. chim. acta*, 1947, 2096).*

Central and Southern Europe, Asia Minor and Persia.

ORIGANUM (*Labiatae*)

O. majorana Linn.; see **Majorna hortensis** Moench

O. vulgare Linn.

H.–*Sathra*; P. & Urdu–*Mirzanjosha*; Tel.–*Mridumaru-vamu.*

Warm infusion of herb—taken to promote menstrual flow when suppressed by cold.

Volatile oil from herb—arom., stim., tonic, rubft., given in colic, diar. and hysteria; used as a liniment; applied in rheumatism, toothache and earache. (*Arch. Pharm., Berl.*, 1880, 277; *Ber. Schimmel u. Co., Lpz.*, 1923, 56); essen. oil 0·45-0·525% (*Riv. ital. Essenze*, 1932, 176; *Chem. Zbl.*, 1932, II, 2249); essen. oil contains thymol 50% (*J. chem. Soc. Japan*, 1936, 574).

Temperate Himalayas, from Kashmir to Sikkim, 7,000-12,000 ft.

ORMOCARPUM (*Leguminosae*)

O. sennoides DC.

Kan.–*Kadunugga*; Mal.–*Kattumurinna*; S.–*Kananshigru*; Tam.–*Kattumuringai*; Tel.–*Gunnangi.*

Root—tonic, stim., used in paralysis and lumbago.

W. India.

OROBANCHE (*Orobanchaceae*)

O. aegyptiaca Pers.

Pers.–*Subz gul.*

Plant—used as cure for boils in throat of cattle; also to stop diar.

More or less throughout India, Baluchistan.

OROXYLUM (*Bignoniaceae*)

O. indicum Vent.

S.–*Shyonaka*; H.–*Arlu*; B.–*Sona*; Bo.–*Tetu*; Tam.–*Vangam*; Tel.–*Mokkavepa*; Mal.–*Aralu*; P.–*Tatmorang.*

Root bark—astrin., tonic, useful in diar. and dysen.

Bark—made into powder along with *haldi* useful cure for sore-backs of horses; in powder or infusion diaphor., useful in acute rheumatism; bitter tonic.

Tender fruits—grateful carmin., stomch.

Seeds—purg.

Stem—in scorpion-sting.

Crystalline bitter oroxylin; alk. (*J. chem. Soc.*, 1901, 354); glucd. bitter substance (Dragendorff-Heilpflanzen, 609; *Proc. chem. Soc., Lond.*, 1901, 148); crystalline substance oroxylin separated from bark and seeds and baicalein from bark (*J. chem. Soc.*, 1936, 591; 1938, 1555).*

Throughout India, except in the western drier area.

ORTHOSIPHON (*Labiatae*)

O. grandiflorus Boldingh. syn. *O. stamineus* Benth.

English–*Java tea.*

Leaves—made into a tea used in kidney and bladder diseases in Java.

Glucd. orthosiphonin, essen. oil (*Amer. J. Pharm.*, 1887, 80; *Bull. Inst. bot. Buitenz.*, 1902, Nr. 14, 9; *Chem. Zbl.*, 1926, II, 1986; *Ber. Schimmel u. Co., Lpz.*, 1931, 49; *Pharm. Acta Helvet.*, 1933, 72; *Chem. Zbl.*, 1933, II, 76); essen. oil 0·65%; drug contains a glucd., essen. oil, saponin, phytosterol and tannin; it has diur. effect (*Pr. med.*, 1935, 1355; *Chem. Abstr.*, 1936, 7219; *Arch. Pharm., Berl.*, 1936, 10); essen. oil contains a crystalline substance; non-volatile portion of the extract contains sitosterol, α- and β-linoleic acids and an alk. (*J. Chin. chem. Soc.*, 1940, 111; *Chem. Abstr.*, 1941, 4913).

Assam, Deccan and Anamalais.

O. stamineus Benth.; see **O. grandiflorus** Boldingh.

ORYZA (*Gramineae*)

O. sativa Linn.

S.–*Dhanya, Shali*; H. & B.–*Chaval, Dhan*; Marathi–*Tandula*; Tam.–*Arishi*; Tel.–*Dhanyamu*; Mal.–*Ari*; Bo.–*Bhatta.*

Rice gruel—in disorganized digestion, in bowel complaints, in diar. and dysen.

Rice-water—demulc., refrig., soothing, nourishing drink in febrile diseases and inflammatory states of intestines.

Rice poultice—used like linseed meal poultice.

(*J. Amer. chem. Soc.*, 1903, 948; *J. chem. Soc.*, 1923; 2666); alk. oridine (antineuritic when impure) (*Biochem. Z.*, 1920, 218); As 7 mg. in 100 g. ash of corn (*C.R. Acad. Sci., Paris*, 1912, 893; 1914, 269; *Chem. Zbl.*, 1912, I, 1730; 1914, II, 885; *J. Physiol.*, 1912, 75, 395; *Biochem. J.*, 1914, 598; *Chem. Zbl.*, 1923, I, 1192; 1920, III, 14; 1927, I, 1850); silver skin contains oryzyanin, a base (*Bull. agric. chem. Soc. Japan*, 1932, 11; *Chem. Zbl.*, 1932, I, 2071; *Proc. imp. Acad. Japan*, 1932, 179; *Chem. Zbl.*, 1932, II, 2202); bran gave a glucd. nukain which on hydrolysis yielded the aglucone nukagenin (*Chem. Abstr.*, 1950, 3016).

Widely cultivated.

OSBECKIA (*Melastomaceae*)

O. crinita Benth.

Lepcha–*Number*; Nep.–*Chulasi*.

Decoct. of dried leaves—used for toothache in Tongking.

Sikkim and Bhutan, 4,000-8,500 ft., Khasia Hills, 3,000-6,000 ft.

O. cupularis D. Don

M.–*Chirkualathi*.

Whole plant—pounded and applied to swellings.

Mountains of the southern Deccan Peninsula, Mysore, Bababudan Hills and the Nilgiris.

O. nepalensis Hook.

Assam–*Bagaphatkala*.

Flowers—pounded and applied to sores in children's mouth.

Subtropical Himalayas from Nepal eastwards and the Khasia Hills.

OSMUNDA (*Osmundaceae*)

O. claytoniana Linn.

Rhizome—used as an adulterant for male fern in the American market.

Himalayas from Kashmir to Bhutan at 6,000-10,000 ft. and in the Khasia Hills up to 4,500-6,000 ft.

O. regalis Linn.

English–*Royal Fern*.

Plant—tonic and styptic; used for rickets in England.

Western mountains of S. India at high elevations; Himalayas from Chamba to Sikkim and Bhutan; Khasia Hills up to 4,000-6,000 ft., in Madhya Pradesh and Bombay States.

OSYRIS (*Santalaceae*)

O. arborea Wall.

Nep.–*Jhuri*; Bo. & Marathi–*Popli*; Kan.–*Tamparal*; Kumaon–*Bakraja*.

Infusion of leaves—powerful emetic.

Subtropical Himalayas, Madhya Pradesh and Western Peninsula.

OTHONNOPSIS (*Compositae*)

O. intermedia Boiss.

Quetta–*Gangu*, *Manguli*.

Plant—used as cure for headaches, boils and pimples.

Baluchistan and Waziristan.

OTOSTEGIA (*Labiatae*)

O. aucheri Boiss.

Baluchi–*Suraghzai*.

Plant—used in suppressed small-pox if the pox does not appear, after which the pox appears.

Baluchistan.

O. limbata Hook. f.

P.–*Bui*, *Phutkanda*.

Juice of leaves—applied to children's gums and to ophthalmia in man and beast.

Lower hills of the W. Punjab west of the Jhelum to the Salt Range.

OUGEINIA (*Leguminosae*)

O. dalbergioides Benth.

S.–*Tinisha*; H. & P.–*Sandan*; B.–*Tinis*; Bo.–*Timas*; Mal.–*Malavenna*; Tam.–*Narivengai*; Tel.–*Tellamotuku*.

Bark—febge.; when incised furnishes a kino-like exudation which is used in dysen. and diar.; in decoct. given when the urine is highly coloured; used as fish poison.

Sub-Himalayan tract and outer Himalayan valleys and slopes up to 5,000 ft., from the Punjab to Bhutan, Oudh, Bundelkhand, Chota Nagpur, Madhya Bharat, Orissa, and the Circars, Madhya Pradesh, Bombay and Marwar of Rajputana.

O. oojeinensis (Roxb.) Hochr.; see **O. dalbergioides** Benth.

OURATEA (*Ochnaceae*)

O. angustifolia Baill. ex Laness.

Mal. & Marathi–*Valermani*; Kan.–*Kempokallu*; Tam.–*Vellaichilandi*.

Roots and leaves—bitter, used in decoct. as tonic, stomch., sedative and antiemetic.

Bombay, Konkan, W. Coast and lower slopes of W. Ghats from S. Kanara to Tinnevelly up to 3,000 ft. in evergreen forests.

OXALIS (*Oxalidaceae*)

O. acetosella Linn.

Plant—refrig., antiscor.

Oxalic acid (*Pharm. J.*, 1927, 105).

Temperate Himalayas from Kashmir to Sikkim, 8,000-12,000 ft.

O. corniculata Linn.

S. & P.–*Amlika*; H. & B.–*Amrul*; Bo.–*Ambuti*; Tam.–*Paliakiri*; Tel.–*Pulichinta*; Mal.–*Poliyarala*.

Leaves—cooling, refrig., stomch., antiscor.

Plant—used as cure for scurvy.

Acid potassium oxalate (Chopra, 512).

Nearly all regions throughout the warmer parts of India, in the Himalayas up to 8,000 ft.

OXYRIA (*Polygonaceae*)

O. digyna Hill

P.–*Amlu*, *Chohahak*.

Plant—cooling.

Alpine Himalayas from Kashmir to Sikkim, 10,000-17,500 ft.

OXYSTELMA (*Asclepiadaceae*)

O. esculentum R. Br.

S.–*Dugdhika*; H. & B.–*Dudhialata*; Bo.–*Dudhika*; P.–*Gharote*; Tam.–*Usippalai*; Tel.–*Dudipala*.

Decoct. of plant—used as gargle in aphthous ulcerations of mouth and in sore throat.

Roots—considered specific for jaundice.

Milky sap—used as a wash for ulcers.

Throughout the plains and lower hills of India, usually near water.

PACHYGONE (*Menispermaceae*)

P. ovata (Poir.) Miers ex Hook. f. & Th.

Tam.–*Kadukkodi*.

Dried fruit—used for destroying vermin and stupefying fish.

Sandy seashore of the Coromandel Coast from Nellore to Tanjore and Tinnevelly; also in the Deccan in Bellary, Cuddapah and Mysore.

PAEDERIA (*Rubiaceae*)

P. foetida Linn.

S.–*Prasarani*; H.–*Gandhali*; B.–*Gandhabhadulia*; Bo.–*Prasaram*; Tel.–*Savirela*; Mal.–*Talanili*; Marathi–*Hiranvel*.

Plant—considered specific for rheum. affections, administered both internally and externally.

Roots—emetic.

Juice of leaves—astrin., given to children in diar.

Herb cantains essen. oil, alk. (Dymock, Warden & Hooper, II, 229).*

Central and E. Himalayas, up to 5,000 ft., extending to Calcutta and Malay Peninsula.

P. tomentosa Blume

Plant—in Indo-China credited with antiphl. properties and said to be specially useful in tenesmus.

E. Himalayas and the Khasia Hills.

PAEONIA (*Ranunculaceae*)

P. emodi Wall.

H.–*Udsalap*; Kash.–*Mid*; P.–*Mamekh*.

Tubers—useful medicine for uterine diseases, colic, bilious obstructions, dropsy, epilepsy, convulsions and hysteria; given to children as blood-purifier.

Seeds—emetic, cath.

Infusion of dried flowers—useful in diar.

W. Himalayas from Kashmir to Kumaon, 5,000-10,000 ft.

P. officinalis Linn.

H.–*Udsalap*; Bo.–*Udesalam*.

Tubers—used in epilepsy.

Glucd. (*J. Pharm. Chim., Paris*, 1911, 238); essen. oil (*Ber. dtsch. chem. Ges.*, 1886, 1776; *Liebigs Ann.*, 1915, 1; *J. chem. Soc.*, 1926, 1968).

S. Europe and W. Asia; cultivated.

PANAX (*Araliaceae*)

P. fruticosus Linn.; see **Polyscias fruiticosa** Harms

PANDANUS (*Pandanaceae*)

P. odoratissimus Roxb.; see **P. tectorius** Soland. ex Parkinson

P. tectorius Soland. ex Parkinson syn. *P. odoratissimus* Roxb.

S.–*Ketaka*; H.–*Keora*; B.–*Keya*; Bo.–*Keura*; Tam.–*Talhai*; Tel.–*Ketaki*; Mal.–*Tala*.

Leaves—bitter, pungent, arom., used in leprosy, small-pox, syphilis, scabies and leucoderma.

Oil from bracts—stim., antisp., administered for headache and rheumatism.

Essen oil (*Pharm. J.*, 1880, 653); outer part of the flower yields an essen. oil containing 70% methyl ether of β-phenylethyl alcohol (*J. Indian chem. Soc.*, 1938, 509; *Chem. Abstr.*, 1939, 2281); blossoms yield 0·1-0·3% essen. oil containing benzyl benzoate, benzyl salicylate, benzyl acetate, benzyl alcohol, geraniol, linalool, linalyl acetate, bromostyrene, guaiacol, phenylethyl alcohol and aldehydes (*Dtsch. ParfumZtg*, 1937, 473; *Chem. Zbl.*, 1938, 2263; *Chem. Abstr.*, 1939, 8915).

Seacoast of the Indian Peninsula on both sides and the Andamans.

PANICUM (*Gramineae*)

P. antidotale Retz.
H.–*Gunara*; P.–*Ghamur*; Gujarati–*Dusto.*

Smoke of the burning plant—used to fumigate wounds, and as disinfectant in small-pox.

Punjab, Upper Gangetic Plains and Western Peninsula.

P. crus-corvi Linn.; see **Echinochloa crus-galli** Beauv.

P. frumentaceum Roxb.; see **Echinochloa crus-galli** Beauv. var. **frumentacea** Wight

P. italicum Linn.; see **Setaria italica** Beauv.

P. maximum Jacq.
H.–*Gini ghaus*; Tam.–*Giniopillu.*

Grass—considered best horse-fodder, but may cause fatal colic if given in too large a quantity or when wet.

Cultivated in many parts of India.

P. miliaceum Linn.
Kash.–*Chinwa*; H.–*Chin*; B., Bo., P. & S.–*China*; Tam.–*Varagu*; Tel.–*Varagalu*; Kan.–*Baragu.*

Plant—used as cure for gonor.

Throughout the hotter parts of India, cultivated or naturalized.

P. miliare Lam.
B.–*Gondula*; Bo.–*Warai*; P. & H.–*Kutki*; Tam.–*Shamai*; Tel.–*Nellashamalu.*

Plant—nervine stim., tonic, sometimes used as subst. for *P. miliaceum.*

Cultivated or naturalized throughout India.

P. sarmentosum Roxb.
Roots—chewed with betel-nuts as aphrodis. in Malaya.

Assam, Sylhet, Cachar, Khasia Hills up to 5,000 ft., and Chittagong.

PAPAVER (*Papaveraceae*)

P. argemone Linn.
Infusion or syrup of petals—much esteemed as a sudorific in Spain.

Cultivated in Indian gardens.

P. dubium Linn.
Petals—sudorific.

Two alks. aporeine and aporeidine isolated from the plant, the former has a physiological action resembling thebaine (Kirt. & Basu, I, 125; U.S.D., 1555).

W. Himalayas from Hazara to Kashmir and Garhwal, also as a cold-season weed in the plains of northern India.

P. hybridum Linn.
Petals—diaphor.

Plant contains the non-toxic alk. rhoeadine and another base (Kirt. & Basu, I, 126).

Punjab, Jhelum valley.

P. nudicaule Linn.
Flowers and capsules—mildly diaphor.

Leaves contain HCN-glucd. (*C.R. Acad. Sci., Paris*, 1913, 727).

W. Himalayas and Tibet, up to 17,000 ft.

P. orientale Linn.
Petals—sudorific.

Contains alks. narcotine, thebaine, isothebaine (*Chem. Zbl.*, 1913, II, 2046; *Arch. Pharm., Berl.*, 1914, 211); thebaine, isothebaine, glaucidine, two phenolic bases and one non-phenolic base isolated from the plant (Kirt. & Basu, I, 128); does not contain morphine; contains 0·16% total alks. yielding thebaine, protopine and oripavine (*Ber. dtsch. chem. Ges.*, 1935, 2158; *Chem. Abstr.*, 1936, 1380; U.S.D., 1555).

Cultivated in Indian gardens.

P. rhoeas Linn.
S.–*Rakta-posta*; H.–*Lalpost*; B.–*Lalposht*; Bo.–*Janglimudrika*; Mal.–*Chovannakashakasha*; Tam.–*Sivappugashagasha*; Tel.–*Errapostakaya.*

Milk of capsules—narcotic and slightly sedative.

Petals—sudorific, used as a slight sedative.

Leaves and seeds—tonic, useful in low fevers.

Rhoeadine, morphine, paramorphine, narcotine (*Arch. Pharm., Berl.*, 1890, 7; *Chem. Zbl.*, 1916, 1159; *Chem. News*, 1916, 85); glucd. (*Mh. Chem.*, 1931, 383; 1932, 285; *Chem. Zbl.*, 1931, I, 2384; 1932, II, 2668); non-toxic alk. rhoeadine occurs in all parts of the plant (Kirt. & Basu, I, 123); flowers yield 0·031% alk. rhoeadine (*Mh. Chem.*, 1936, 33; *Chem. Abstr.*, 1936, 5997; *Arch. Pharm., Berl.*, 1936, 439; U.S.D., 1555).

Kashmir and Pangi; cultivated in gardens throughout the plains of northern India.

P. somniferum Linn.
S.–*Ahiphena;* H. & B.–*Afim, Post*; Bo.–*Aphim*; Mal.–*Afiun*; Tam.–*Postaka*; Tel.–*Kosakosa.*

Opium the inspissated milky juice from immature capsules — narcotic.

Sap contains oxalic acid (*Schweiz. ApothZtg*, 1918, 55); opium contains some 25 alks. the chief being morphine, codeine, thebaine (strong bases and highly toxic), narcotine, narceine, papaverine (feeble bases and slightly toxic) (Trease, 294); it has no prophylactic or curative effect in malaria (*Indian J. med. Res.*, 1930-31, 5); it does not have much effect in reducing the amount of blood sugar of diabetic patients (*Indian J. med. Res.*, 1930-31, 15); it decreases albumin (*Indian med. Gaz.*, 1931, 299); morphine content in various plant parts gave the amounts 0·35, 0·15, 0·20 and 0·25% respectively for capsules, stems, rest and whole plant (*Dansk Tidsskr. Farm.*, 1936, 1; *Chem. Abstr.*, 1936, 3945); morphine 0·35% in capsules free from seeds (*Dansk Tidsskr. Farm.*, 1936, 1; *Chem. Abstr.*, 1936, 3945); straw contains 0·08% morphine (*Bull. Sci. pharm.*, 1938, 265; *Chem. Abstr.*, 1938, 8074); dry capsule yields 0·388% morphine, 0·001% codeine, 0·335% papaverine and 0·247% narcotine (*Merck's Jber.*, 1940, 29; *Chem. Abstr.*, 1941, 8203); dry opium should contain 40% total alks., 9·5-10·5% morphine and 1·5-2·5% codeine (*Indian J. Pharm.*, 1942, 53; *Chem. Abstr.*, 1942, 6752); papaverine in small doses may augment auriculo-ventricular standstill (*J. Pharmacol.*, 1942, 335; *Chem. Abstr.*, 1942, 3848); aqueous extract contains, besides alkaloids, the compounds $\mathrm{4\text{-}HOC_6H_4CHO}$, vanillin, vanillic acid, *p*-hydroxystyrene, fumaric acid, *dl*-lactic acid, benzyl alcohol, $\mathrm{4\text{-}HOC_6H_4CH : CH.COOH}$, $\mathrm{4\text{-}HOC_6H_4COOH}$, 2-hydroxycinchoninic acid, phthalic acid, hemipinic acid, *m*-hemipinic acid, meconin, an odorous compound, etc. (*Helv. chim. acta*, 1945, 722; *Chem. Abstr.*, 1946, 1487); seeds contain small amount of papaverine and morphine; plants contain codeine and morphine (*Ann. pharm. franc.*, 1946, 156; *Chem. Abstr.*, 1947, 4227); stigmas contain more morphine than whole head; morphine content decreases both in heads and stigmas from green fresh heads to yellow dry heads (*Ann. pharm. franc.*, 1946, 10; *Chem. Abstr.*, 1947, 4277); capsules gave 0·05% narcotoline (*Pharmazie*, 1950, 80; *Chem. Abstr.*, 1950, 7027).

Cultivated in the Uttar Pradesh, districts of Jullundur and Hoshiarpur in E. Punjab, and various parts of Rajputana and Madhya Bharat. Widely cultivated as ornamental plant in gardens.

PARAMIGNYA (*Rutaceae*)

P. angulata Kurz syn. *P. longispina* Hook. f.

B.–*Ban-nimbu*.

Fruit—used in colic.

Sundarbans.

P. longispina Hook. f.; see **P. angulata** Kurz

P. monophylla Wight

Bo.–*Karivageti*; Kan.–*Kadukanji*; Nep.–*Natkanta*.

Root—alter., diur., given to cattle in haemat.

Konkan, Deccan, S. Mahrata Country, N. Circars, W. Ghats from N. Kanara to Tinnevelly up to 6,000 ft., Sikkim, 2,000-5,000 ft., Bhutan and the Khasia Hills.

PARDANTHUS (*Iridaceae*)

P. chinensis Ker; see **Belamcanda chinensis** DC.

PARMELIA (*Parmeliaceae*)

P. kamstchadalis Ach.

Vern. names and uses same as of *P. perlata*.

Atranorin and protolichesteric acid isolated (*J. Indian chem. Soc.*, 1954, 253).

N.W. Himalayas.

P. perforata

Vern. names and uses same as of *P. perlata*.

P. perlata Ach.

S.–*Shitashiva*; H.–*Charela*; P.–*Ausneh*; Tam.–*Kalpasi*; Tel.–*Ratipachi*; Marathi–*Dagadaphula*.

Astrin., laxt., tonic, carmin., aphrodis., used in dyspep., amenor., calculi, in scorpion-sting and snake-bite.

Yields lecanoric acid and atranorin (*Indian J. Pharm.*, 1955, 50).

Kashmir hills and the Himalayas.

PARSONSIA (*Apocynaceae*)

P. helicandra Hook. & Arn. syn. *P. spiralis* Wall.

M.–*Pe-nalivalli*.

Juice of plant—given internally in insanity.

Assam, Lower Bengal and Western Peninsula.

PASPALUM (*Gramineae*)

P. scrobiculatum Linn.

S.–*Kodrava*; H.–*Kodo*; B.–*Kodoadhan*; Bo. & P.–*Kodra*; Tam.–*Varagu*; Tel.–*Kiraruga*.

Plant—used in scorpion-sting, occasionally develops narcotic properties (*Rep. Sch. trop. Med. Calcutta*, 1924).

Throughout hotter part of India, wild or cultivated.

PASSIFLORA (*Passifloraceae*)

P. edulis Sims

Pulp of fruit—used as stim. and tonic in Brazil.

Naturalized in tropical parts. Brazil.

P. foetida Linn.

S.–*Mukkopeera*; Tam.–*Siruppunaikkali*; Tel.–*Tellajumiki*; Kan.–*Kukkiballi.*

Decoct. of leaves—used in biliousness and asthma.

Fruit—emetic.

Leaves—applied on the head in giddiness and headache.

HCN (*Pharm. Weekbl.*, 1911, 307; *Bull. Sci. pharm.*, 1906, 603).

Widely cultivated in India.

PAVETTA (*Rubiaceae*)

P. indica Linn.

S.–*Papata*; H.–*Papari*; B.–*Kukurachura*; Bo.–*Papat*; Tam.–*Pavattai*; Tel.–*Papatakommi*; Mal.–*Pavatta.*

Root—bitter, aper., prescribed in visceral obstructions; pulverized and mixed with ginger and rice-water given in dropsy.

Leaves—boiled in water and a fomentation made which is used in haemorrhoidal pains.

Root contains glucd. (Dymock, Warden & Hooper, II, 212).

Throughout India.

PAVONIA (*Malvaceae*)

P. odorata Willd.

S.–*Hribera*; H.–*Sugandhabala*; B.–*Bola*; Bo.–*Kalavala*; Mal.–*Kuruntotti*; Tam.–*Peramutti*; Tel.–*Ettakuti.*

Root—astrin., tonic, prescribed in dysen., cooling, demulc., carmin., febge.

Plant—used as a cure for rheumatism.

N.W. India, Bundelkhand, Sind, Baluchistan, W. Rajputana, Bengal, Konkan, S. Mahrata Country, N. Circars, Deccan and Carnatic.

P. propinqua Garcke

Decoct. of leaves and branchlets—used as a wash, to prevent abortion in syphilitic women in Somaliland.

Sind and Baluchistan.

P. zeylanica Cav.

Kan.–*Chittamutti*; Tam.–*Mammatti*; Tel.–*Karubenda.*

Plant—used as vermifuge and purg. in Gambia.

N.W. India, W. Rajputana, Sind, Western Peninsula, Circars and Carnatic.

PEDALIUM (*Pedaliaceae*)

P. murex Linn.

H. & B.–*Baragokhru*; Bo.–*Mottoghokru*; Tam.–*Perunerunji*; Tel.–*Yenugapalleru*; Mal.–*Katunerinjal.*

Fruit—demulc., diur., antisp., aphrodis.; in decoct. given for incontinence of urine, spermatorrhoea, nocturnal emission and impotency.

Infusion of leaves and stems—used in gonor. and dysuria.

Juice of fruit—emmen., used in puerperal diseases and to promote lochial discharges.

Decoct. of root—antibil.

Young branches contain mucil. and root alk. (Dymock, Warden & Hooper, III, 36).

Kathiawar, Gujarat, Konkan, Deccan Peninsula.

PEDICULARIS (*Scrophulariaceae*)

P. pectinata Wall.

H. & P.–*Mishran.*

Plant—diur.

Pounded leaves—given for haemoptysis.

W. Himalayas, 7,000-11,000 ft., from Kashmir to Kumaon.

P. siphonantha D. Don

Plant—used as diur. in the Punjab.

Alpine Himalayas, from Kashmir to Sikkim, 11,000-16,000 ft.

PEGANUM (*Rutaceae*)

P. harmala Linn.

H., P. & Bo.–*Hurmal*; B.–*Isband*; Tam.–*Simaiyalavinai*; Tel.–*Simagoronti.*

Plant—aphrodis., emmen., galact., abortif.

Seeds—narcotic, given in fever and colic; used as a remedy for tapeworm in man.

Decoct. of leaves—given for rheumatism.

Root—applied to kill lice.

Seeds and roots contain 4 alks.: harmine, harmaline, harmalol, and peganine (*Ber. dtsch. chem. Ges.*, 1885, 400; 1889, 637; 1897, 2481; *J. chem. Soc.*, 1919, 953; *Chem. Listy*, 1932, 476; *Chem. Zbl.*, 1933, I, 3606; *Ber. dtsch. chem. Ges.*, 1934, 45; *Chem. Zbl.*, 1934, I, 2131; *Curr. Sci.*, 1934, 388; U.S.D., 1544); blossoms and stems yield alk. peganine identified with l-peganine (*Ber. dtsch. chem. Ges.*, 1936, 2022; *Chem. Abstr.*, 1936, 8228); peganine (vasicine) (*Trans. Ukrain. Inst. exp. Pharm.*, 1938, 28; *Chem. Abstr.*, 1939, 9306); harmaline applied at a concentration 1:25,000 to perfused frog heart reduces the cardiac activity and causes bradycardia; harmine has practically the same action as harmaline (*Farmacoter. act.*, 1946, 842; *Chem. Abstr.*, 1947, 3214); the alks. are toxic to several lower forms of animal life, notably helminths and protozoa (*Biochem. J.*, 1934, 264); the drug has a stim. effect to the central nervous system in encephalitis lethargica (*Arch. exp. Path. Pharmak.*, 1930, 301; *Med. Klinik*, 1931, 17).*

Baluchistan, Waziristan, Kurrum valley, Sind, Cutch, Punjab, Kashmir, Delhi, Uttar Pradesh, Bihar, Konkan and Western Deccan.

PEGOLETTIA (*Compositae*)

P. senegalensis Cass.

Plant—given with ghee to children to make them strong at Kharan in Quetta; boiled and the juice applied to wounds of camels as a cure.

Baluchistan.

PELLAEA (*Polypodiaceae*)

P. calomelanos Link

The Sutos use the rhizome as an anthelm. and smoke the leaf for colds in the head and chest.

Sirmur State, Dehra Dun, Garhwal and Kumaon, ascending up to 5,000 ft.

PENNISETUM (*Gramineae*)

P. compressum R. Br.

Plant—used as tonic in China.

Burma.

P. glaucum R. Br. syn. *P. spicatum* Roem. & Schult.

B., Bo. & H.–*Bajra*; S.–*Nali*; Tam.–*Kambu*; Tel.–*Sazza*; Mal.–*Mattari*.

Plant—tonic, useful in diseases of heart, appetizer.

Amylase isolated from malted seed (*J. Indian Inst. Sci.*, 1929, 105A).

Cultivated in numerous forms in India.

P. spicatum Roem. & Schult.; see **P. glaucum** R. Br.

P. typhoideum Rich.; see **P. glaucum** R. Br.

PENTAPETES (*Sterculiaceae*)

P. phoenicea Linn.

S.–*Bandhuka*; H.–*Dopahari*; B.–*Bandhuli*; Bo. & Marathi — *Tambridupari*; P.–*Guldupaharia*; Tam.–*Nagappu*.

Plant—emol., demulc., used in snake-bite.

Fruit—mucilaginous.

Indigenous to N.W. India, Bengal, Gujarat, planted in many places.

PENTATROPIS (*Asclepiadaceae*)

P. cynanchoides R. Br.

P.–*Vanveri*; Bo.–*Singarota*; H.–*Kauathodi*; S.–*Kakakshi*.

Dry roots—given in decoct. as astrin. and cooling alter.; used in gonor.

Punjab, eastwards to the Jumna, Baluchistan and Sind.

P. microphylla W. & A.

H.–*Ambarvel*; S.–*Shringariti*; Mal.–*Parpparam*; Tam.–*Uppili*; Tel.–*Pulapala*; Marathi–*Shingrota*.

Plant—cooling, alter.

Bengal and Western Peninsula.

P. spiralis Decne.; see **P. cynanchoides** R. Br.

PERGULARIA (*Asclepiadaceae*)

P. extensa N.E. Br. syn. *Daemia extensa* R. Br.

B.–*Chagulbanti*; Bo.–*Utarni*; P.–*Trotu*; H.–*Utran*; S.–*Yugaphala*; Mal.–*Veliparuti*; Tam.–*Uttamani*; Tel.–*Guruti*.

Plant—expect., emetic.

Juice of leaves—used as expect. in catarrhal affections, in infantile diar., given in asthma; applied to rheum. swellings in combination with lime or ginger; in snake-bite.

Fresh leaves—made into pulp used as a poultice in carbuncle with good effect.

Root bark—mixed with cow's milk used as a purg. in rheum. cases.

Plant contains a bitter resin, two bitter principles and a glucd. possessing physiological action similar to pituitrin and several sterols (*J. Amer. pharm. Ass.*, 1947, 250; *Chem. Abstr.*, 1947, 7675; *Indian J. Pharm.*, 1947, 58; I.P.C., 201); action of glucd. on the uterus is similar to pitutarin (*Indian J. med. Res.*, 1946, 181; *Chem. Abstr.*, 1947, 6632).

Throughout India in hotter parts.

P. tomentosa Linn.

Plant—anthelm.

Baluchistan.

PERICAMPYLUS (*Menispermaceae*)

P. glaucus (Lam.) Blatter syn. *P. incanus* (Colebr.) Miers

H. & B.–*Barakkanta*; Nep.–*Lahara*.

Root—antid. to snake poisons.

Narcotic alk. (*Bull. Pharm.*, 1892, 123; Wehmer, I, 332).

Assam, Khasia, Chittagong and Sikkim.

P. incanus (Colebr.) Miers; see **P. glaucus** (Lam.) Blatter

PERILLA (*Labiatae*)

P. ocimoides Linn.

H.–*Bhanjira*; Kumaon–*Bhangara*.

Leaves, stems and seeds—considered resolv., diaphor., and cephalic in China and Indo-China.

Plant—used as sedative, antisp. and antid. in Annam.

From Kashmir to Bhutan at 1,000-10,000 ft.; Khasia Hills from 3,000-6,000 ft.; cultivated in Chittagong; extends from Champaran to Burma.

PERIPLOCA (*Asclepiadaceae*)

P. aphylla Decne.
P.–*Barri*; Bo.–*Buraye.*

Milky juice—used as application for swellings and tumours.

Plant—stated to be used in cerebral fever and as stomch.

Decoct. of bark—purg.

Resin alcohol, bitter substance, etc., isolated (*Arch. Pharm., Berl.*, 1937, 192; *Chem. Abstr.*, 1937, 4769).

Salt Range and Punjab plains from the Jhelum westwards, sub-Himalayan tract in Rawalpindi and Hazara, ascending to 4,000 ft., Waziristan and Baluchistan.

PERISTROPHE (*Acanthaceae*)

P. bicalyculata Nees
H.–*Atrilal*; B.–*Nasabhaga*; Bo.–*Pitpapra*; Tel.–*Chebira.*

Plant—macerated in an infusion of rice said to be antid. to snake poison.

Throughout India.

PEROVSKIA (*Labiatae*)

P. abrotanoides Karel.
Pushtu—*Shanshohai.*

Flowers—soaked in water applied to the body of a patient suffering from fever as a cooling medicine.

W. Himalayas, 8,000-13,000 ft., and Baluchistan.

P. atriplicifolia Benth.
Baluchistan—*Tirk.*

Plant—used as a cooling medicine.

Kashmir, 7,500-10,000 ft., and Baluchistan.

PETROSELINUM (*Umbelliferae*)

P. crispum (Mill.) Nym. ex auct Kew syn. *P. sativum* Hoffm.; *Carum petroselinum* Benth. & Hook. f.
English—*Parsley*

Dried ripe fruit—stim., diur., used in amenor. and dysmen.

Glucd. apiin, essen. oil containing apiol, alk. (*Ber. dtsch. chem. Ges.*, 1876, 259, 1121, 1477; 1903, 3451; 1907, 3771; 1908, 2753; *J. chem. Soc.*, 1900, 420; 1897, 807; *Bull. Soc. chim. Paris*, 1907, 1001; *Ber. Schimmel u. Co., Lpz.*, 1900, Oct., 50; *J. Soc. chem. Ind., Lond.*, 1927, 174); fruits contain coumarin (*Pharm. Acta Helvet.*, 1944, 158; *Chem. Abstr.*, 1945, 153; *Merck's Jber.*, 1936, 102; *Chem. Abstr.*, 1937, 3194; *Mitt. naturf. Ges. Bern*, 1938, 21; *Chem. Abstr.*, 1939, 5129); apiole causes poisoning and sometimes fatal lesions in liver and kidney (*Rev. med. lat.-amer.*, 1933, 825; *An. Asoc. quim. argent.*, 1935, 128; *Chem. Abstr.*, 1936, 164); rabbits and guinea-pigs treated with increasing oral doses of apiole during gestation usually abort and die after 26-28 days (*Rev. sudamer. Endocr.*, 1938, 299; *Chem. Abstr.*, 1938, 8005).*

Frequently cultivated in India.

P. sativum Hoffm.; see **P. crispum** (Mill.) Nym. ex auct Kew

PEUCEDANUM (*Umbelliferae*)

P. aucheri Boiss.
Seeds—taken to cure indigestion.
Baluchistan.

P. dhana Ham.
Root—used as tonic.

W. Himalayas up to 7,000 ft., and N. Bengal.

P. grande C.B. Clarke
H.–*Duku*; Bo.–*Baphali.*

Herb—carmin., stim., tonic, diur.

Essen. oil (*Ber. Schimmel u. Co., Lpz.*, 1891, April, 50; Dymock, Warden & Hooper, II, 126).

Konkan, W. Ghats and Deccan.

P. graveolens Linn.; see **Anethum sowa** Kurz

P. nagpurense Prain
Uriya–*Epondom.*
Root—used as stomch.
Bihar and Orissa.

PHALARIS (*Gramineae*)

P. arundinacea Linn.
Reported poisonous.

Kashmir, by the Wolar Lake at 5,500 ft.

PHASEOLUS (*Leguminosae*)

P. aconitifolius Jacq.
S.–*Makushthaka*; H. & P.–*Moth*; B.–*Banmudgakheri*; Bo.–*Math*; Tam.–*Tulkapyrai*; Tel.–*Minumulu.*

Root—narcotic.

Seeds—used as diet in fever.

Himalayas to Ceylon, tropical region up to 4,000 ft. in the north-west.

P. adenanthus G.F. Meyer
S.–*Aranyamudga*; B.–*Banbarbati*; Bo.–*Kullounda*; Tel.–*Karalasana.*

Decoct.—used in bowel complaints and stricture.

Spread in the plains from Himalayas to Ceylon, not cultivated.

P. lunatus Linn.
B.–*Bunburbutty*; P.–*Lobiya.*

Seeds—astrin., used as diet in fever.

Seeds contain HCN-glucd. (*C.R. Acad. Sci., Paris*, 1906, 545; *Chem. Zbl.*, 1906, I, 1273; *Bull. Sci. pharm.*, 1907, 565); this species sometimes exhibits markedly poisonous properties; causes

HCN poisoning (*Pr. med.*, 1935, 1419; *Chem. Abstr.*, 1936, 7219).

Cultivated throughout India. A native of Brazil.

P. mungo Linn.

S.–*Mudga*; H., P., B. & Bo.–*Mung*; Tam.–*Patchaipayaru*; Tel.–*Wuthulu*.

Seeds—cooling, astrin., used as diet in fever and to strengthen the eye.

(*C.R. Acad. Sci., Paris*, 1930, 934; *Arch. Pharm., Berl.*, 1906, 67); ash per cent, 2·88 (*Indian J. med. Res.*, 1937, 1027).

Vastly cultivated in India.

P. radiatus Linn.

S.–*Masha*; H.–*Urid*; B.–*Mashkalai*; Bo.–*Udid*; M.–*Ulundu*; P.–*Mash*; Mal.–*Cherupoyara*; Tam.–*Paunippayaru*; Tel.–*Patchapesalu*.

Seeds—used both internally and externally, in paralysis, rheumatism and affections of the nervous system, considered hot and tonic, useful in piles, affections of the liver and cough, and in fever.

Root—narcotic.

(*J. Amer. chem. Soc.*, 1897, 509; *J. biol. Chem.*, 1922, 103); seeds contain saponin I, II and III (*J. pharm. Soc. Japan*, 1932, 33; *Chem. Zbl.*, 1932, I, 3185).

Extensively cultivated all over India.

P. trilobus Ait.

S.–*Mudgaparni*; H. & B.–*Mugani*; Bo.–*Mukuya*; Tam.–*Panipayar*; Tel.–*Pillippersara*.

Leaves—tonic, sedative, used in cataplasms for weak eyes; administered in decoct. in irregular fever.

On the Himalayas, up to 7,000 ft. and southwards to Ceylon and Burma.

P. vulgaris Linn.

H.–*Bakla*; P.–*Babr*; M.–*Barigalu*.

Used as emol.

(*C.R. Acad. Sci., Paris*, 1926, 1114; *J. Soc. chem. Ind., Lond.*, 1920, 246; *Chemikerztg*, 1916, 147); leaves contain allantoin (*C.R. Acad. Sci., Paris*, 1933, 883); fruit contains rubidium (*Trav. Lab. Biogeochim. U.R.S.S.*, 1932, 85; *Chem. Zbl.*, 1933, I, 3325).

Universally cultivated, but not anywhere clearly known as a wild plant.

PHELIPAEA (*Orobanchaceae*)

P. calotropidis Walp.; see **Cistanche tubulosa** Wight

PHLOGACANTHUS (*Acanthaceae*)

P. thyrsiflorus Nees

Assam & B.–*Bakhatita*; P.–*Lal-bahuk*; Garhwal–*Kaldona*.

Plant—used like *Adhatoda vasica*.

Upper Gangetic Plain, subtropical Himalayas up to 4,000 ft. from the Ravi to Bhutan, Assam and Chota Nagpur.

PHOENIX (*Palmae*)

P. dactylifera Linn.

H., P., B. & Bo.–*Khajur*; S.–*Pindakharjura*; Tam.–*Pericham*; Tel.–*Kharjuramu*; Mal.–*Tenitta*.

Fresh juice—cooling, laxt.

Gum—useful in diar. and diseases of the genito-urinary system.

Fruit—demulc., expect., nutrient, laxt., aphrodis., prescribed in asthma, chest complaints and cough; also in fever, gonor., etc.

Vitamin B and antiscor. vitamin; fruit contains vitamin A, B and D (*Bull. Soc. bot.*, 1933, 388; *Chem. Zbl.*, 1933, II, 3354.

Cultivated and self-sown in Sind, and S. Punjab.

P. farinifera Roxb.; see **P. pusilla** Gaertn.

P. pusilla Gaertn.

H.–*Palawat*; Kan.–*Ichalu*; Mal.–*Chiltintal*; Tam.–*Kalangu*.

Fresh juice—cooling, laxt.

Gum—used in diar. and genito-urinary diseases.

Coromandel Coast not far from the sea, in the northern part of Ceylon in dry forests.

P. sylvestris Roxb.

S.–*Kharjuri*; H., P., B. & Bo.–*Khajur*; Tam.–*Periyaitcham*; Tel.–*Peddayita*; Mal.–*Kattinta*.

Fruit—tonic and restor.

Juice of tree—used as a cooling beverage.

Root—used in toothache.

Kernels—made into a paste with the root of *Achyranthes aspera*, eaten with betel leaves as remedy for ague.

Tolerably common throughout India, wild or more often cultivated.

PHOTINIA (*Rosaceae*)

P. serrulata Lindl.

Leaves contain HCN-glucd. (*C.R. Acad. Sci., Paris*, 1906, 451; *Chem. Zbl.*, 1906, II, 1653; *J. Pharm. Chim., Paris*, 1912, 574).

Nilgiri Hills.

PHRAGMITES (*Gramineae*)

P. maxima Blatter & McCann

B. & P.–*Nal*; H.–*Narkul*; S.–*Nala*; Tam.–*Perunanal*; Tel.–*Peddarellu*; Mal.–*Nalam*.

Root—regarded as cooling, diur. and diaphor.

Throughout India, ascending the Himalayas in hot valleys to 3,000 ft.

PHYLLANTHUS (*Euphorbiaceae*)

P. acidus Skeels; see **Cicca acida** (Linn.) Merrill

P. distichus Muell.-Arg.; see **Cicca acida** (Linn.) Merrill

P. emblica Linn.; see **Emblica officinalis** Gaertn.

P. maderaspatensis Linn.
H.–*Kanocha*; Gujarati–*Kanochha*; Tel.–*Nalausereki*.
Infusion of leaves—given for headache.
Drier parts of India.

P. multiflorus Willd.; see **P. reticulatus** Poir.

P. niruri Linn.
S.–*Bhumyamalaki*; H.–*Jar-amla*; B.–*Bhui-amla*; Bo.–*Bhui-avala*; Mal.–*Kizhkkayinelli*; Tam.–*Kilkkaynelli*; Tel.–*Nelavusari*.
Plant—used as a diur. in dropsical affections, gonor. and other troubles of the genito-urinary tract.
Infusion of young shoots—given in dysen.
Fresh root—remedy for jaundice.
Leaves—stomch.
Milky juice—used as application to offensive sores.
Powdered leaves and roots—pulverized and made into poultice with rice-water used to lessen oedematous swellings and ulcers.
Leaves contain bitter substance phyllanthin (*Ber. dtsch. pharm. Ges.*, 1905, 186); a popular remedy against fever; neither quinine nor any alk. detected (*An. Univ. S. Domingo*, 1944, 295; *Chem. Abstr.*, 1947, 1812); dry leaves yield bitter principles hypophyllanthin (0·05%) and phyllanthin (0·35%); toxic to fish and frog (*Proc. Indian Acad. Sci.*, vol. 24A, 1946, 357; *Chem. Abstr.*, 1947, 2712).
Throughout the hotter parts of India from the Punjab to Assam and southwards to Travancore, ascending the hills up to 3,000 ft.

P. reticulatus Poir.
S.–*Krishna kambhoji*; H.–*Panjoli*; B.–*Panjuli*; Bo.–*Pavana*; Tam.–*Nirppulanji*; Tel.–*Pulisar*; Mal.–*Niruri*.
Leaves—diur., cooling.
Bark—alter. and attenuant.
Juice of leaves—made into pills with camphor and cubebs and allowed to dissolve in the mouth act as remedy for bleeding gums; used for diar. in infants.
Throughout tropical India.

P. rhamnoides Roxb.; see **Sauropus quadrangularis** Muell.-Arg.

P. simplex Retz.
Bo. & Marathi–*Bhuiavali*; Tel.–*Uchchiyusirika*.
Fresh leaves—bruised and mixed with butter milk used as a wash for itch in children.
Root—used as external application for mammary abscess.
Fresh leaves, flowers and fruits—with cumin seeds and sugar made into an electuary used for the cure of gonor.
Throughout India in the plains and low hills, from Kumaon to Assam and southwards to Travancore.

P. urinaria Linn.
S.–*Tamravalli*; Marathi–*Lalmundajanvali*; H. & B.–*Hazarmani*; Mal.–*Chirukizhukanelli*; Tel.–*Ettausirika*; Tam.–*Shivappunelli*.
Plant—used as diur. in dropsical affections, also in gonor. and other genito-urinary troubles; fish poison.
Root—given to sleepless children.
Alkaloidal principle (Dymock, Warden & Hooper, I-III).
Throughout the plains of India from the Punjab to Assam and Madras State up to 3,000 ft.

PHYLLOSTACHYS (*Gramineae*)

P. bambusoides Sieb. & Zucc.
Root—considered tonic in China.
Sprouts—considered parasiticidal in China.
Upper Assam on the Mishmi Hills.

PHYSALIS (*Solanaceae*)

P. alkekengi Linn.
S.–*Rajaputrika*; Ind. Baz.–*Kaknaj*.
Plant—diur., alter., anthelm., used in urinary and skin diseases.
Leaves—diur.
Bitter substance, alk. (*J. prakt. Chem.*, 1852, 323; *Amer. Drugg.*, 1886, 961; *Hoppe-Seyl. Z.*, 1927, 229); fruit contains vitamin C, citrone (*Z. Vitaminforsch.*, 1934, 93; *Chem. Zbl.*, 1934, I, 3614); leaves contain bitter principle physalin (*Helv. chim. acta*, 1934, 417).
Native of S.E. Europe to Japan; naturalized in many parts of the world.

P. angulata Linn.
Plant—used as diur. in La Reunion.
Leaves—used to cure stomach troubles in the Gold Coast.
Cultivated in Indian gardens. Tropical America.

P. flexuosa Linn.; see **Withania somnifera** Dun.

P. minima Linn.

S.–*Tankari*; H.–*Tulatipati*; B.–*Bantepariya*; Bo.–*Thanmori*; P.–*Habbikaknaj*; Tel.–*Kupanti*.

Fruit—considered tonic, diur., aper., used for horses and gonor.

Juice of leaves—mixed with water and mustard oil used as a remedy against earache.

More or less throughout India ascending up to 7,000 ft. in the Himalayas.

P. minima Linn. var. **indica** C.B. Clarke

S.–*Lakshmipriya*; Marathi–*Chirboti*.

Plant—considered tonic, diur., purg.; ingredient of a medicinal oil which is given for spleen.

Grown in Indian gardens. Tropical America.

P. peruviana Linn.

B.–*Tepuria*; H.–*Tipari*; Marathi–*Phopti*; S.–*Tankasi*; Tel.–*Pambudda*.

Juice of leaves—given in worms and bowel complaints.

Plant—diur.

Grown in Indian gardens. Tropical America.

PHYSOCHLAINA (*Solanaceae*)

P. praealta Miers syn. *P. praealta* Hook f.

P.–*Bajarbang*, *Nandru*.

Leaves—applied to boils; poisonous.

Leaves contain 1·02% alk. hyoscyamine, hyoscine, and potassium nitrate, potassium chloride and potassium sulphate; roots contain 0·64% alk. hyoscyamine and sucrose (*J. sci. industr. Res.*, 1951, 182B, 234B; 1952, 505B).

Kashmir, 12,000-15,000 ft.

PHYTOLACCA (*Phytolaccaceae*)

P. acinosa Roxb.

H. & P.–*Matazor*; Kumaon–*Jirrag*; Urdu–*Sarangun*.

Plant—narcotic.

Oil from root—used for pain in joints.

Bitter tox. substance phytolacca toxin (*J. pharm. Soc. Japan*, 1891, Nr. 98; *Ber. dtsch. chem. Ges.*, 1891, 698; *Arch. exp. Path. Pharmak.*, 1912, 118; *Chem. Zbl.*, 1928, I, 1820).

Temperate Himalayas, wild or cultivated, from Hazara and Kashmir to Bhutan, 5,000-9,000 ft.

PICEA (*Pinaceae*)

P. abies (Linn.) Karst. syn. *Abies excelsa* DC.

Resin—stim., rubft.

Branches and needles contain essen. oil 0·56%, bitter substance, glucd. coniferin (*Ber. Schimmel u. Co., Lpz.*, 1892, Oct., 21; 1906, April, 32; *Arch. Pharm., Berl.*, 1893, 290; 1900, 411; *J. prakt. Chem.*, 1865, 243).*

Mountains of Central Europe, in Sweden and Russia; introduced in India.

PICRASMA (*Simarubaceae*)

P. javanica Blume

Bark—febge.

Bitter substance. (Chopra, 515).

Andamans, from Martaban to Tenasserim, Malay Peninsula.

P. nepalensis Benn.

Khasia Hills and Nepal.

P. quassioides Benn.

H.–*Charangi*; B.–*Bhurungi*; Garhwal–*Karwi*; P.–*Bering*.

Wood—bitter, subst. for Quassia.

Bark, wood and root—febge.

Leaves—applied to itch.

Stemwood contains bitter principle quassin (*Pharm. J.*, 1889, 43; 1895, 454; *Indian J. med. Res.*, 1929, 770); alk. (0·05%) which is almost identical with picrasmin and a chloroform-soluble fluorescing bitter substance (0·15%) (I.P.C., 217).*

Himalayas from the Chenab eastwards, 4,800 ft., Chamba, Kulu, Bashahr, N. Garhwal between 6,000 and 8,000 ft., Bhutan and Nepal.

PICRIS (*Compositae*)

P. hieracioides Linn.

Leaves—bitter, used by the Muong as febge. in Indo-China.

Temperate Himalayas from Murree to Bhutan at 6,000-8,000 ft., ascending to 10,000 ft. in Sikkim, Khasia Hills at 4,000-6,000 ft., Nilgiris at 5,000-8,000 ft.

PICRORHIZA (*Scrophulariaceae*)

P. kurroa Royle ex Benth.

S.–*Katuka*; H. & B.–*Katki*, *Kuru*; Bo.–*Kalikutki*; P.—*Karru*; Mal.–*Katukhurohani*; Tam.–*Katukurogani*; Tel.–*Katukarogani*.

Root—bitter, cath., stomch., used in fever and dyspep. and in purg. preparations; in scorpion-sting.

Glucd. picrorhizin (Dymock, Warden & Hooper, III, 12; *Indian J. med. Res.*, 1934, 263); roots contain a glucosidic bitter principle kutkin, yield 3·4% on dry basis, a non-bitter product kurrin, yield 0·5%, 0·1% vanillic acid, kutkiol occurring as acetate, yield 0·06%, and kutkisterol, yield 0·18% (*J. sci. industr. Res.*, 1949, 173B; *Chem. Abstr.*, 1950, 3097).

Alpine Himalayas, from Kashmir to Sikkim, 9,000-15,000 ft.

PIERIS (*Ericaceae*)

Pieris ovalifolia D. Don; see **Lyonia ovalifolia** (Wall.) Drude

PIMENTA (*Myrtaceae*)

P. racemosa J.W. Moore syn. *P. acris* Kostel.

Tam.–*Kattukkaruva*; Kan.–*Gandamenasu*; Mal.–*Kappalmulaku*.

Powdered fruit—used in flatulence, dyspep. and diar.

W. Indies.

PIMPINELLA (*Umbelliferae*)

P. anisum Linn.

S.–*Shetapusapa*; H.–*Saonf*; B.–*Muhuri*; Bo.–*Sonf*; M.–*Shombu*.

Fruit—diur., carmin., used to prevent flatulence and colic.

Seeds contain essen. oil 90% of which is anethole, rest being *p*-methoxyphenyl acetone and chavicol (*Ber. Schimmel u. Co., Lpz.*, 1895, Oct., 6; *Bull. imp. Inst., Lond.*, 1917, 300; *C.R. Acad. Sci., Paris.*, 1896, 198).*

Cultivated in north-west India, Uttar Pradesh, Punjab and Orissa.

P. diversifolia DC.

Herb—used as carmin.

Throughout the Himalayas, 4,000-10,000 ft., Khasia Hills.

P. heyneana Wall.

M.P.–*Tirio*.

Root—used in fever.

Konkan, S. Mahrata Country, N. Kanara, Deccan, Circars and Chittagong.

P. saxifraga Linn. var. **disectifolia** C.B. Clarke

Root and herb—arom., carmin., stomch.

Root—acrid, used as lithontriptic in Europe.

Infusion of herb—given to relieve flatulent indign.

Herb contains essen. oil, bitter substance, saponin (*Ber. Schimmel u. Co., Lpz.*, 1890, April, 37); root contains pimpinellin (*Mh. Chem.*, 1932, 161; *Chem. Zbl.*, 1932, I, 2597); effective in causing contraction of the gravid and virginal uterus (*Merck's Jber.*, 1936, 102; *Chem. Abstr.*, 1937, 3194).

Kashmir.

P. stocksii Boiss.

Baluchistan–*Harpir*.

Grain—crushed and mixed with water swallowed as a remedy against pain in stomach.

Baluchistan.

PINANGA (*Palmae*)

P. dicksonii Blume

Tel.–*Kondapoka*; Mal.–*Kanakamuka*.

Fruit—used as a subst. for betel-nut.

Mountains of Travancore and Malabar, Gersoppa Falls and Nilkund Ghats of N. Kanara.

PINUS (*Pinaceae*)

P. deodara Roxb.; see **Cedrus deodara** (Roxb.) Loudon

P. excelsa Wall.; see **P. griffithi** M'Clell.

P. gerardiana Wall.

H. & P.–*Rhi*; S.–*Chida*; Urdu–*Chilgozah*; Kumaon–*Ronecha*.

Seeds—anodyne, stim.

Oil from seeds—applied as a dressing to wounds and ulcers; external application in head diseases.

Essen. oil (*J. Indian chem. Soc.*, 1928, 63; *Indian For. Rec.*, 1923, 341; *Perfum. essent. Oil Rec.*, 1923, 297).

N.W. Himalayas 5,800-12,000 ft., and Baluchistan.

P. griffithi M'Clell. syn. *P. excelsa* Wall.

P. & Kash.–*Chil*; H.–*Kail*; Garhwal–*Chilla*; Kumaon–*Dolchilla*.

Properties similar to *P. longifolia*. (*Indian For. Rec.*, 1923, 341); contains 87·0% α- and β-pinene; (*J. Indian Inst. Sci.*, 1941, 201; *Chem. Abstr.*, 1942, 4967).

Temperate Himalayas 6,000-12,500 ft. (not in Central and N.W. Kumaon nor in Sikkim) and Waziristan.

P. khasya Royle

Khasia–*Digsa*.

Essen. oil (*J. Amer. chem. Soc.*, 1894, 844; *Indian For. Rec.*, 1922, 111); contains 95·7% α- and β-pinene (*J. Indian Inst. Sci.*, 1941, 201A; *Chem. Abstr.*, 1942, 4967).

Khasia and Chittagong, 3,000-7,000 ft.

P. longifolia Roxb.; see **P. roxburghii** Sargent

P. merkussii Jungh.

Burm.–*Tinyri*.

Used as other pines.

Essen. oil containing 85-90% d-α-pinene (*Ber. Schimmel u. Co., Lpz.*, 1932, 66); contains 97·9% α- and β-pinene (*J. Indian Inst. Sci.*, 1941, 201A; *Chem. Abstr.*, 1942, 4967).

Martaban and Upper Tenasserim, 500-2,500 ft.

P. roxburghii Sargent syn. *P. longifolia* Roxb.

S. & Tel.–*Sarala*; H. & P.–*Chir*; B.–*Saralagachha*; Marathi–*Saraladeodara*; Tam.–*Simaidevadari*; Mal.–*Saralam*; Kash.–*Sarl*.

Resin—stim., used internally as stomch., and as a remedy for gonor., externally as a plaster applied to buboes and abscesses for suppuration.

Wood—stim., diaphor., useful in burning of the body, cough, fainting and ulcerations.

Wood and oleo-resin—used in snake-bite and scorpion-sting.

Essen. oil (*J. chem. Soc.* 1920, 570; *J. Indian Inst. Sci.*, 1928, 200A); α- and β-carene (*Bull. Inst. Pin,* 1932, 142; *Chem. Zbl.*, 1932, II, 2249; *Ber. Schimmel u. Co., Lpz.*, 1932, 65); contains 40% α- and β-pinene (*J. Indian Inst. Sci.*, 1941, 201; *Chem. Abstr.*, 1942, 4967).

Outer Himalayan Ranges from the Indus to Bhutan, 1,500-7,500 ft.

P. webbiana Wall.; see **Abies spectabilis** (D. Don) Spach

PIPER (*Piperaceae*)

P. attenuatum Ham.

Root—macerated in water an excellent diur.

E. tropical Himalayas, Sikkim, Bhutan, Assam, Sylhet, Khasia Hills and the Nilgiris.

P. aurantiacum Wall.

S.–*Ranuka*; H.–*Shambhaluka buj*; B.–*Renuk*.

Fruit—bitter, acrid, refrig.

Assam and Nepal.

P. betle Linn.

S.–*Tambuli*; H., B. & Bo.–*Pan*; Tam.–*Vettilai*; Tel.–*Vitika*; Mal.–*Tambulam*.

Leaf—arom., carmin., stim., in snake-bite.

Essen. oil from leaves—used in respiratory catarrhs and as antisep.

Juice of leaves—dropped into the eyes in painful affections and in night-blindness; also used to relieve cerebral congestion and satyriasis and to allay thirst.

Fruit—employed with honey as a remedy for cough.

Root—used to prevent child bearing.

Essen. oil, chavicol, enzymes (*Ber. dtsch. chem. Ges.*, 1889, 2736; *Ber. Schimmel u. Co., Lpz.*, 1914, April, 30; 1917, 10; *J. Indian chem. Soc.*, 1934, 265).*

Cultivated in hotter and damper parts of India.

P. chaba Hunter

S.–*Chavika*; H.–*Chab*; B.–*Choi*; Bo.–*Kankala*; Gujarati–*Chavaka*; Tel.–*Sevasu*.

Fruit—arom., stim., carmin., used in cough and cold and in haemorrhoidal affections.

Cultivated in various parts of India.

P. cubeba Linn. f.

S.–*Sugandha muricha*; H., B. & Bo.–*Kabab-chini*; M.–*Val milaku*.

Oil—used in genito-urinary diseases like cystitis, gonor., and gleet.

Essen. oil, cubebin (*J. Soc. chem. Ind., Lond.*, 1928, 792; *J. Amer. chem. Soc.*, 1915, 1537; *Ber. Schimmel u. Co., Lpz.*, 1922, 20).

Cultivated to some extent in India.

P. longum Linn.

S.–*Pippali*; P., H., B. & Bo.–*Piplamul*; Mal.–*Pippali*; Tel.–*Pippallu*.

Dried unripe fruit—alter. tonic.

Decoct. of immature fruit and root—used in chr. broncht., cough and cold.

Root and fruit—antid. to snake-bite and scorpion-sting.

Hotter States of India.

P. nigrum Linn.

S.–*Maricha*; Tam.–*Milagu*; Mal.–*Kurumulaka*; Tel.–*Marichamu*; H.–*Golmirch*; B.–*Golmorich*; Bo.–*Kala miri*.

Fruit—used as arom. stim. in cholera, in weakness following fevers, vertigo, coma; as stomch. in dyspep. and flatulence; as antiper. in malarial fever; as an alter. in paraplegia and arthritic diseases; externally used as rubft. and as a local application for relaxed sore-throat, piles and skin diseases.

Alk., chavicine, piperine, piperidine, essen. oil (U.S.D., 1546; *Helv. chim. acta*, 1927, 593; *Amer. J. Pharm.*, 1908, 1; *Ber. Schimmel u. Co., Lpz.*, 1890, Oct., 39); fruits contain piperetine (*J. chem. Soc.*, 1950, 1177; *Chem. Abstr.*, 1950, 10685).

Cultivated in hot and damp parts of India.

P. sarmentosum Roxb.

Root—diur.

Malay Peninsula and Java.

P. sylvaticum Roxb.

B.–*Pahari-pipal*.

Fruit—carmin.

Roots—antid. to snake poison.

Upper and Lower Assam and Bengal.

PISONIA (*Nyctaginaceae*)

P. aculeata Linn.

B.–*Baghachura*; Kan.–*Ettarumullinaballi*; Tam.–*Karindu*; Tel.–*Embudi*.

Bark and leaves—used as counter-irrit. for swellings and rheum. pains.

Juice—mixed with pepper and other ingredients given in pulmonary complaints of children.

W. Peninsula, N. Circars, Ganjam to Godavari; Andaman Islands.

P. alba Span. syn. *P. morindaefolia* R. Br.

Bo.–*Chinaisalit*; Tam.–*Muruval.*

Fresh leaves—moistened with eau-de-Cologne, used in inflam. of elephantoid nature in the legs and other parts.

Andamans; cultivated in India.

PISTACIA (*Anacardiaceae*)

P. integerrima Stew. ex Brandis

S.–*Karkata sringi*; H. & B.–*Kakra shingi*; Kash. & P.–*Kakkar*; Gujarati & Kumaon–*Kakra*; M.–*Kakkata shingi.*

Galls—tonic, expect., used in cough, phthisis, asthma, etc.; powdered and fried in ghee given internally in dysen.; antid. to snake venom and scorpion-sting.

Essen. oil (*Indian For.*, 1912, 160); galls gave 1·3% essen. oil and two crystalline acids (*Sci. & Cult.*, 1945, 46; *J. sci. industr. Res.*, 1945, 423; *Chem. Abstr.*, 1946, 565; 1946, 5203); essen. oil contains α-pinene 25, camphene 27, *dl*-limonene 4-5, 1:8-cineole 10, α-terpeneol 20, aromadendren 4-5% and caprylic acid (*J. sci. industr. Res.*, 1947, 60B; *Chem. Abstr.*, 1947, 3925).

Trans-Indus, Salt Range, Punjab, outer ranges of N.W. Himalayas, 1,500-8,000 ft.

P. lentiscus Linn.

H.–*Rumi mastiki*; B.–*Rumi-mastungi.*

Resinous exudation—used in solution as a filling for carious teeth.

Resin, essen. oil (*Arch. Pharm., Berl.*, 1904, 104; *Chem. News*, 1896, 120; *Ber. Schimmel u. Co., Lpz.*, 1915, 36; *Pharm. Acta Helvet.*, 1934, 19; U.S.D., 664).

Mediterranean region.

P. terebinthus Linn.

H. & Bo.–*Kabuli mustaki.*

Astrin., restor.

Resin, essen. oil (*Arch. Pharm., Berl.*, 1881, 170, 227; *Chem. Zbl.*, 1898, I, 1300; 1925, II, 926); resin contains 12% essen. oil (*J. Pharm. Chim., Paris*, 1937, 595; *Chem. Abstr.*, 1937, 8829); resin yields essen. oil containing d-pinene, dipentene and free borneol (*Prakt. Akad. Athen*, 1937, 137; *Chem. Abstr.*, 1939, 5989).

Islands and shores of the Mediterranean, as well as throughout Asia Minor.

P. vera Linn.

H., B. & Bo.–*Pista.*

Nuts—sedative, tonic.

(*J. Pharm. Chim., Paris*, 1903, 272; *Chem. Zbl.*, 1929, II, 897).

Syria, Damascus, Mesopotamia, Terak, Orfa, Badghis and Khorasan; extensively cultivated in Syria, Palestine and Persia.

PISTIA (*Araceae*)

P. stratiotes Linn.

S.–*Kumbhika*; H.–*Jalkhumbhi*; B.–*Takapana*; Bo.–*Prashni*; Tam.–*Agasatamarai*; Tel.–*Akastamara*; Mal.–*Koddapail.*

Plant—demulc., refrig., given in dysuria; used to destroy bugs.

Root—emol., laxt., diur.

Leaves—made into poultice applied to haemorrhoids; mixed with rose water and sugar given in asthma and cough, and with rice and coconut milk in dysen.

Ashes—applied to ringworm of the scalp.

Juice of leaves—boiled in coconut oil and the preparation used externally in chr. skin diseases.

Throughout India in still sweet water.

PISUM (*Leguminosae*)

P. sativum Linn.

B., H. & P.–*Mattar*; Bo. & Marathi–*Vatana*; S.–*Satila*; Mal. & Tam.–*Pattani*; Tel.–*Patanlu.*

Seeds—believed to cause dysen. when eaten raw; in Spain their flour considered emol. and resolv., and applied in form of a cataplasm.

Alk. trigonelline (*Ber. dtsch. chem. Ges.*, 1894, 796); As 0·026 mg. in 100 g. ash of the seeds (*C.R. Acad. Sci., Paris*, 1912, 893; *Chem. Zbl.*, 1912, I, 1730; *Pharm. Weekbl.*, 1921, 1482); oil from ripened seeds has anti-sexhormonic effect (*Sci. & Cult.*, 1949, 159); produces sterility and antagonizes effect of male sexhormone (*Cal. med. J.*, 1950, 313; 1953, 409, 413).

Cultivated generally.

PITHECELLOBIUM (*Leguminosae*)

P. bigeminum Mart.

H. & Bo.–*Kachlora*; S.–*Aragvadha*; Kan.–*Nuggikar*; Mal.–*Kalpakku*; Tam.–*Kalaippakku.*

Plant—fish poison.

Seeds—prescribed in diabetes mellitus.

Decoct. of leaves—applied externally; used as a nostrum for leprosy and for promoting growth of hair.

Alk. (*Ber. dtsch. chem. Ges.*, 1890, 3541; *Chem. Zbl.*, 1906, I, 1440).

Eastern Himalayas, Khasia and Jaintia Hills, Konkan, N. and S. Kanara, W. Ghats of Madras State from Mysore to Anamalais and Travancore.

P. dulce (Roxb.) Benth.

Bo.–*Chinch*; Tam.–*Karkapilli*; Tel.–*Simachinta*; Kan.–*Simahunase*; H.–*Dakhanibabul*.

Bark—used as febge. in Guiana.

Decoct.—given as an enema.

Cultivated throughout India. A native of Tropical America.

PITTOSPORUM (*Pittosporaceae*)

P. floribundum W. & A.

Marathi–*Vehkali*; Bo.–*Yekdi*; Tam. & Kan.–*Tammata*; Tel.–*Rakamuki*.

Bark—bitter, arom., given in broncht., expect., febge., narcotic, antid. to snake poison.

Oil—alter., tonic, stim., specific for certain skin diseases, local application in rheumatism, chest affections and phthisis, ophthalmia, sprains and bruises, sciatica and leprosy; internally prescribed in cutaneous diseases, secondary syphilis, chr. rheumatism and leprosy.

Bitter glucd., essen. oil (*J. chem. Soc.*, 1906, 1083; *Bull. imp. Inst., Lond.*, 1927, 107; Dymock, Warden & Hooper, I, 154).*

Subtropical Himalayas from the Punjab to Sikkim up to 5,000 ft., Ganjam, Konkan, W. Ghats, Nilgiris and southwards, hills of S Arcot and Salem.

PLANTAGO (*Plantaginaceae*)

P. amplexicaulis Cav.

P.–*Isafghol*; Urdu–*Ispaghul*.

Uses similar to *P. ovata*.

Plant—considered astrin., useful in intermittent fever and in pulmonary affections; applied to the eyes in ophthalmia; antid. to snake-bite.

Punjab plains, Malwa, Sind and Baluchistan.

P. brachyphylla Roem. & Schult.

Pushtu–*Parharpangi*.

Leaves—applied to wounds.

Western Himalayas, from Kumaon to Kashmir, 9,000-13,000 ft.

P. ciliata Desf.

Plant—used as cure for dysen.

Punjab hills, Sind and Baluchistan.

P. lagocephala Bunge

Baluchistan–*Danishk*; Urdu–*Isufgol*.

Various preparations used against gripes, constip., white urine and boils.

Baluchistan.

P. lanceolata Linn.

H.–*Baltanga*; B.–*Barlung*.

Seeds—used with sugar as a drastic purg.

Leaves—applied to wounds, sores and inflamed surfaces.

Glucd. aucubin (*Ber. dtsch. chem. Ges.*, 1927, 935; *C.R. Acad. Sci., Paris*, 1902, 1441).

W. Himalayas, from Kashmir to Simla, Salt Range and Waziristan, 5,000-8,000 ft.

P. major Linn.

H. & Kumaon–*Lahuriya*; Kash.–*Isafghol*; Bo.–*Bartang*.

Seeds—tonic, stim., useful remedy for dysen.; used as subst. for those of *P. ovata*.

Leaves and roots—astrin., used in fever.

Leaves—applied to bruises.

Glucd. aucubin (*J. Pharm. Chim., Paris*, 1907, 254; *J. pharm. Soc. Japan*, 1924, 5); seeds contain 0·183% holoside planteose (*Bull. Acad. Med. Belg.*, 1943, 386; *Chem. Zbl.*, 1944, I, 1291; *Chem. Abstr.*, 1945, 4849); leaves contain glucosides, saponins, bitter compounds; a 10% ointment of powdered leaves in vaseline quickly stops pus formation in impetigo (*Farmatsiya*, 1945, 28; *Chem. Abstr.*, 1947, 2210).*

Temperate and alpine Himalayas, Assam, Khasia Hills, Konkan, W. Ghats, Nilgiris, Pulneys and Baluchistan.

P. ovata Forsk.

H.–*Ispaghul*; B.–*Isabgul*; Bo. & P.–*Isabghol*; S.–*Ishadgola*; Tam.–*Ishappukol*; Tel.–*Isphagula*; Mal.–*Karkatasringi*.

Seeds—demulc., cooling, diur., used in inflammatory conditions of the mucous membrane of gastro-intestinal and genito-urinary tracts, in chr. dysen., diar. and constip.

Mucil. (*Indian med. Gaz.*, 1930, 428); seeds contain 0·168% holoside planteose (*Bull. Acad. Med. Belg.*, 1943, 386; *Chem. Zbl.*, 1944, I, 1291; *Chem. Abstr.*, 1945, 4849).*

Punjab plains and low hills from the Sutlej westwards, Sind and Baluchistan.

P. psyllium Linn.

English–*Fleawart*.

Seeds—aper., used like those of *P. ovata*.

Glucd. aucubin (*J. Pharm. Chim., Paris*, 1907, 254).

N.W. Punjab and Peshawar.

PLATANUS (*Platanaceae*)

P. orientalis Linn.

P. & Kash.–*Chinar*, *Buin*.

Fresh leaves—bruised and applied to the eyes in ophthalmia.

Bark—boiled in vinegar given in diar., dysen., hernia and toothache.

Allantoin, asparagin (*Ber. dtsch. chem. Ges.*, 1881, 1602; *Hoppe-Seyl. Z.*, 1885, 420; *C.R. Acad. Sci., Paris*, 1893, 498); leaves contain d-allantoin (*C.R. Acad. Sci., Paris,* 1934, 1953; *Chem. Zbl.,* 1934, II, 2693).

N.W. Himalayas, 5,000-8,000 ft. Cultivated only.

PLATYSTOMA (*Labiatae*)

P. africanum Beauv.

Used for fever, feverish chills or rheum. symptoms in Northern Nigeria.

Leaves and seeds—used for children's cough in Gold Coast.

Bombay, Dharwar, N. Kanara and Mysore.

PLECTRONIA (*Rubiaceae*)

P. didyma Kurz; see **Canthium dicoccum** (Gaertn.) Merr.

P. parviflora Bedd.; see **Canthium parviflorum** Lam.

PLEOPELTIS (*Polypodiaceae*)

P. lanceolata Linn.

In Mexico a tea made from this fern is taken to cure itch.

Assam, W. Ghats of the Madras State, Nilgiris.

PLESMONIUM (*Araceae*)

P. margaritiferum (Roxb.) Schott

Goa–*Azomut.*

Crushed seeds—used as local anaesthetic to cure toothache, a small quantity is placed in the hollow tooth and covered with cotton.

Central and E. Bengal, Chota Nagpur, Ranchi, Manbhum, Purnea. Reported from Vizagapatam and Rampa Hills in Madras State at 1,500 ft.

PLUCHEA (*Compositae*)

P. indica Less.

B.–*Kukronda.*

Root and leaves—astrin., antipyr., febge.

Essen. oil (*Ber. Schimmel u. Co., Lpz.,* 1912, April, 103).

Salt marshes from the Sundarbans to Malacca and Penang.

P. lanceolata Oliver & Hiern

P.–*Marinandai*; Gujarati–*Rashana*; Kanpur–*Sorahi*; Bo.–*Kura-sanna*; S.–*Rasna.*

Leaves—aper., subst. for senna.

Sind, Punjab, Gangetic Plain as far as Kanpur.

P. pinnatifida Hook. f.

Plant—rubbed on to inflamed or wounded places.

Stems—employed as cure against pain in bowels, anorexia and debility after fevers.

Baluchistan.

PLUMBAGO (*Plumbaginaceae*)

P. indica Linn. syn. *P. rosea* Linn.

S.–*Chitraka*; H. & Bo.–*Lal chitra*; B.–*Lalchita*; Mal.–*Chettikotuveli*; Tam.–*Akkini*; Tel.–*Errachitramulam.*

Root—acrid, vesic., stim., when tempered with little bland oil used as external application in rheum. and paralytic affections; also prescribed internally for these complaints; powerful sialogogue, remedy for secondary syphilis and leprosy.

Milky juice—useful in ophthalmia and application to scabies.

Plumbagin (*J. Pharm. Chim., Paris,* 1828, 441; *J. Indian chem. Soc.,* 1928, 419; *Chem. Zbl.,* 1929, 662), plumbagin, sitosterol glucd. (*J. Indian Inst. Sci.,* 1932, 9A; *Chem. Abstr.,* 1932, 4821; *J. Amer. chem. Soc.,* 1936, 572).*

Cultivated in gardens throughout India. Perhaps a native of Sikkim and Khasia Hills.

P. rosea Linn.; see **P. indica** Linn.

P. zeylanica Linn.

S.–*Chitraka*; H. & B.–*Chita*; Bo.–*Chitra*; P.–*Chitrak*; Mal.–*Tumpukotuveli*; Tam.–*Sittragam*; Tel.–*Chitramulam.*

Root—appetizer, used in skin diseases, diar., dyspep., piles, anasarca; made into a paste with vinegar, milk or salt and water applied externally in leprosy and other skin diseases.

Tincture of root bark—powerful sudorific, antiper.

Milky juice—used as application in scabies and unhealthy ulcers.

Contains plumbagin which externally is a strong irrit. and a powerful germicide, stimulates muscular tissue in smaller doses and paralyses in larger ones, stimulates the contraction of the muscular tissue of the heart, intestines and worms, stimulates the secretion of sweat, urine and bile and has stimulant action on the nervous system (*Indian J. med. Res.,* 1933, 777).*

Throughout India, much cultivated in gardens, wild in the W. Peninsula and probably in Bengal.

PLUMERIA (*Apocynaceae*)

P. acuminata Ait.; see **P. rubra** Linn. var. **acutifolia** Bailey

P. acutifolia Poir.; see **P. rubra** Linn. var. **acutifolia** Bailey

P. alba Linn.

S.–*Kananakaravira*; M.–*Simaiyalari*; Tam.–*Peru*; Tel.–*Veyyivarahalu*.

Latex—applied to ulcers, herpes, and scabies in Guiana.

Seeds—considered haemostatic.

Root bark—purg., alter., detergent, given for blennorrhagia and herpes; in form of an extract used internally and externally for syphilitic ulcers.

W. Indies. Cultivated in Indian gardens.

P. rubra Linn.

Root bark—drastic purg., used mostly in blennorrhagia in Guiana.

Latex—given in toothache and for carious teeth.

Flowers—arom., bechic and used as a pectoral syrup.

Mexico to Guiana and Equador; naturalized in W. Indies. Cultivated in Indian gardens.

P. rubra Linn. var. **acutifolia** Bailey syn. *P. acuminata* Ait.; *P. acutifolia* Poir.

S.–*Devaganagalu*; H.–*Goburchampa*; Assam–*Goalanchi*; Bo.–*Khair champa*; B.–*Gorur champa*; Mal.–*Vellachampakam*; Tam.–*Perungalli*; Tel.–*Vadaganneru*.

Root bark—purg., antiherpetic, useful in gonor. and venereal sores.

Bark—given with coconut, ghee and rice in diar.

Milky juice—employed as a rubft. in rheumatism, purg.

Bitter glucd., essen. oil; plumeric acid (*Chem. Zbl.*, 1899, II, 879; 1901, I, 784; 1926, I, 2111; *Philipp. J. Sci.*, 1909, 131).*

Cultivated as an ornamental tree throughout India, has become naturalized in many places.

POA (*Gramineae*)

P. cynosuroides Retz.; see **Desmostachya bipinnata** Stapf

PODOPHYLLUM (*Berberidaceae*)

P. emodi Wall. ex Hook. f. & Th.; see **P. hexandrum** Royle

P. hexandrum Royle syn. *P. emodi* Wall. ex Hook. f. & Th.

H.–*Papra*; Kash.–*Banwangan*; P.–*Bankakri*; Gujarati–*Venivel*; Marathi–*Patvel*.

Rhizome and roots—hepatic stim., cholag. purg.

Podophyllin, podophyllotoxin (*Pharm. J.*, 1911, 156; 1892, 207); Indian root yields much more resin, the active principle (10 to 12%) as compared to the American root which yields only 4% (*Indian J. med. Res.*, 1926, 535; *Liebigs Ann.*, 1932, 126); rhizomes gave 8·0% podophyllol (podophyllo resin), a sticky resin, quercetin and podophyllotoxin (*J. sci. industr. Res.*, 1950, 137B; *Chem. Abstr.*, 1950, 9633; I.P.C., 208).*

Interior ranges of the Himalayas at 9,000-14,000 ft. from Sikkim to Hazara, descending to 6,000 ft. in Kashmir.

POGOSTEMON (*Labiatae*)

P. heyneanus Benth. syn. *P. patchouli* Hook. f. (Fl. Br. Ind., IV, 633, non Pellet.)

H.–*Pacholi*; B.–*Pachapat*; Bo.–*Patchpan*; Tam.—*Kadirpachai*.

Plant—diur., carmin., insecticidal.

Essen. oil (*Amer. J. Pharm.*, 1918, 733; *Ber. Schimmel u. Co., Lpz.*, 1919, 89; 1930, 61; *Bull. imp. Inst., Lond.*, 1924, 271; 1920, 346).*

Kanara, Western Ghats, from Nilgiris southwards, wild and cultivated.

P. parviflorus Benth.

Bo.–*Pangla*; Marathi–*Pangli*.

Fresh leaves—styptic, bruised and applied as a cataplasm to clean wounds and promote healthy granulation.

Root—remedy for haemor., useful in uterine haemor.; antid. to scorpion-sting and snake-bite.

Alk., essen. oil (Dymock, Warden & Hooper, III, 101).

More or less throughout India.

P. patchouli Hook. f. (Fl. Br. Ind., IV, 633, non pellet.); see **P. heyneanus** Benth.

P. plectranthoides Desf.

Deccan–*Pangla*; Garhwal–*Lujra*; Tel.–*Kusurijang*; Uriya–*Gondripulu*.

Uses same as of *P. parviflorus*.

W. Himalayas, Lower Bengal, Bihar, Gujarat, Konkan, N. Kanara, N. Circars and Deccan.

P. purpurascens Dalz.

Uses same as of *P. parviflorus*.

Konkan, Deccan, N. Kanara, Mysore, W. Coast and W. Ghats of Madras State.

POINCIANA (*Leguminosae*)

P. elata Linn.; see **Delonix elata** Gamble

P. pulcherrima Linn. syn. *Caesalpinia pulcherrima* Swartz

B.–*Krishnachura*; H.–*Guletura*; S. & Tel.–*Ratnagandhi*; Gujarati–*Sandhesharo*; Tam.–*Mayuram*; Mal.–*Settimandaram*.

Leaves—stim., emmen., purg.

Bark—emmen., used as abortif.

Infusion of flowers—pectoral, febge., prescribed in broncht., asthma and malarial fevers.

(*J. pharm.*, 1833, 625; Wehmer, I, 511); fresh leaves in post-seeding stage contain HCN (*Onderstepoort J. vet. Sci.*, 1941, 211; *Chem. Abstr.*, 1944, 1029).

Generally grown in gardens throughout India.

POLIANTHES (*Amaryllidaceae*)

P. tuberosa Linn.

S. & B.–*Rajanigandha*; H. & Bo.–*Gulcheri*; Tel.–*Nelasampenga*; P.–*Gulshabbo.*

Flowers—diur., emetic.

Bulbs—dried and powdered used as a remedy for gonor.

Essen. oil (*Ber. Schimmel u. Co., Lpz.*, 1903, April, 74; *Chem. Zbl.*, 1926, I, 2010).

Cultivated in hotter parts of India. A native of Mexico.

POLYALTHIA (*Annonaceae*)

P. longifolia Benth. & Hook. f.

H. & B.–*Devdaru*; Bo.–*Asoka*; Kan.–*Putrajivi*; M.–*Nettilingam*; Mal.–*Ashokam*; Tam.–*Asogam*; Tel.–*Asokamu.*

Bark—febge.

Cultivated throughout the hotter parts of India.

P. simiarum Benth. & Hook. f.

Nep.–*Khutti*; Orissa–*Mongai*; Santh.–*Dighibentia.*

Bark—used as a cure for scorpion-sting.

Orissa.

POLYCARPEA (*Caryophyllaceae*)

P. corymbosa Lam.

Tam.–*Nilaisedachi*; Tel.–*Rajuma*; S.–*Bhisatta.*

Herb—administered both internally and externally as remedy for venomous bites from reptiles.

Pounded leaves—used cold or warm as poultice over boils and inflammatory swellings; used for bites from animals and given with molasses in form of a pill in jaundice.

Central and N.W. India, Western Peninsula, Sind, ascending the Western Himalayas to 7,000 ft.

POLYCARPON (*Caryophyllaceae*)

P. indicum Merrill

Infusion of roasted leaves—given for cough following upon a fever, more particularly measles in Indo-China.

Hotter parts of India in fields and waste places.

POLYGALA (*Polygalaceae*)

P. chinensis Linn.

H.–*Meradu*; Marathi–*Negli*; Gujarati–*Pilibhonyasana.*

Root—given in cases of fever and dizziness.

Throughout India, up to 5,000 ft.

P. crotalarioides Ham.

Santh.–*Lil kanthi.*

Used medicinally in catar. affections.

Root—chewed or ground and drunk with water to expel phlegm from the throat; provokes coughing; used as cure for snake-bite.

Temperate Himalayas, from Simla and Chamba to Sikkim, 4,000-7,000 ft., and the Khasia Hills.

P. elongata Klein

M.–*Periyananka.*

Plant—used in biliousness and constip., specific for snake poison.

Western Peninsula, from Konkan southwards.

P. glomerata Lour.

Decoct. of stems and leaves—given in inflammatory conditions in Indo-China.

Assam, Khasia Hills and Sikkim.

P. sibirica Linn.

Roots—given as a subst. for senega in colds and coughs in Japan, China and Malaya; in Indo-China used as diur. and also given in broncht., amnesia, sexual impotency and seminal losses.

Temperate and subtropical Himalayas, 1,000-6,000 ft., in Sikkim 8,000 ft., from the N.W. Frontier and the Punjab to Bhutan, Khasia Hills 4,000-6,000 ft., W. Ghats from the Nilgiris to Tinnevelly, chiefly above 6,000 ft.

P. telephioides Willd.

Plant and root—used in catar. affections, expect.

Carnatic, in Nellore and Chingleput, Travancore.

P. vulgaris Thunb.; see **P. sibirica** Linn.

POLYGONATUM (*Liliaceae*)

P. multiflorum Allioni

Root—astrin., demulc., tonic, useful in female weakness and flour albus.

W. temperate Himalayas, from Kashmir to Kumaon, 6,000-9,000 ft.

POLYGONUM (*Polygonaceae*)

P. alatum Ham.; see **P. punctatum** Ham.

P. aviculare Linn.

S.–*Nisomali*; H.–*Bannalia*; B.–*Machutie*; P.–*Kesru.*

Herb—astrin., styptic.

Dried root—applied externally as anodyne.

Seeds—emetic, purg.

Polygonic acid, essen. oil (*Chem. Zbl.*, 1917, II, 393; *Arch. Pharm., Berl.*, 1905, 443; Year Book of Pharmacy, 1885, 160); glycosides quercetin 3-arabinosid and avicularin (*Hoppe-Seyl. Z.*, 1940, 21); aqueous and alcoholic extracts of the leaves toxic for cats and rabbits (*Pharm. & Toxic.*, 1945, No. I, 34; *Chem. Abstr.*, 1946, 5844).

From Kashmir to Kumaon, 6,000-12,000 ft.

P. barbatum Linn.

P.–*Narri*; B.–*Bekhunjubaz*; Marathi–*Dhaktasheral*; Tam.–*Atalari*; Tel.–*Kondamalle*; Mal.–*Vellutamodelamukku.*

Seeds—used to relieve griping pains of colic.

Root—astrin., cooling.

Throughout the hotter parts of India, from Assam to Indus and southwards to Ceylon.

P. chinense Linn.

Garhwal—*Ameta*; Nep.–*Kakurthotne.*

Plant—tonic, vulnerary, antiscor.

Subtropical and temperate Himalayas from Simla to Bhutan, 4,000-8,000 ft., Assam, Khasia Hills, Sylhet, Cachar, Chittagong, Bihar, top of Parasnath 4,000 ft., Deccan Peninsula, Western Ghats from Konkan southwards.

P. cymosum Roxb.; see **P. chinense** Linn.

P. flaccidum Meissn.

Used in insect and snake-bite, as fish poison.

Throughout India in wet places, ascending the Himalayas to 4,000 ft.

P. glabrum Willd.

Assam–*Bihagni*; Bo.–*Raktarohida*; Tam.–*Atlaria.*

Infusion of leaves—used in colic pain.

Plant—used as febge.

Throughout India.

P. hydropiper Linn.

B.–*Packur-mul.*

Herb and leaves—acrid, stim., diur., emmen., used in amen. and other uterine disorders; fish poison.

Root—stim., bitter tonic.

Leaves contain essen. oil, oxymethylanthraquinones (*Bull. Sci. pharm.*, 1925, 27; 1926, 138; *Pharm. Weekbl.*, 1919, 1084); also polygonic acid having irrit. properties, a glycoside which promotes the coagulation of blood (*Chem. Abstr.*, 1929, 238) and a polygonone-containing ethereal oil which lowers blood pressure (*Chem. Abstr.*, 1934, 1776; U.S.D., 1369).

Plains and hills of India, in wet places, from Assam, Sylhet, Chittagong and Bengal to N.W. India, ascending the Khasia Hills to 5,000 ft., and the Himalayas to 7,000 ft.

P. molle D. Don

Nep.–*Patuswa.*

Plant—astrin.

Central and E. Himalayas, Mishmi Hills.

P. orientale Linn.

Plant—good tonic and vulnerary.

Himalayas, from Kashmir eastwards, Bengal and Assam.

P. persicaria Linn.

English–*Lady's thumb.*

Plant—in Europe considered astrin., and used as vulnerary and lithontriptic.

Kashmir.

P. plebejum R. Br.

Santh.–*Raniphul.*

Root—given in bowel complaints.

Plant—dried and powdered taken internally in pneumonia.

Throughout tropical India and sometimes ascending the Himalayas to 7,000 ft., from Kashmir to Bhutan.

P. punctatum Ham.

P.–*Satbalon.*

Leaves—applied to swellings.

Throughout the Himalayas, from Kashmir to Sikkim, 4,000-10,000 ft., Khasia Hills, 4,000-6,000 ft., W. and S. India.

P. serrulatum Lagasca

Paste of leaves—applied to sores, bites of insects and snakes.

From the Indus in the W. Himalayas to Bengal, Assam, Central and S. India.

P. sphaerostachyum Meissn.

Plant—good astrin.

Temperate and subalpine Himalayas, 11,000-15,000 ft.

P. virginianum Linn.

Plant—demulc., pectoral, astrin., tonic and diur.

Temperate Himalayas, from Kashmir to Sikkim.

P. viviparum Linn.

P. & Kash.–*Maslun*; Urdu–*Anjabar.*

Root—astrin., applied to abscesses; a decoct. is used as an injection in gleet and leucor.; makes an efficient gargle in relaxed sore-throat and spongy gums and a good lotion for ulcers; mixed with gentian given in intermittent fevers; useful in diar. and passive haemor.

From Kashmir to Sikkim, up to 15,000 ft.

POLYPODIUM (*Polypodiaceae*)

P. quercifolium Linn.; see **Drynaria quercifolia** J. Smith

P. vulgare Linn.
Ind. Baz.–*Basfaij*.
Rhizome—cholag. purg.

Roots and rhizomes yield essen. oil containing butyric, hexoic, lauric and succinic acids, methyl salicylate, butyric, isovaleric and α-methylbutyric esters; a fatty oil acting as an energetic purg.; a resin, another resin containing BzOH and its esters which is strongly anthelm., a glucd. samambain and saponins (*Sci. pharm.*,1934, 129; *Chem. Abstr.*, 1936, 4993; U.S.D., 1554).

Europe, America and Turkey in Asia.

POLYPORUS (*Polyporaceae*)

P. anthelminticus Berk.
Burm.–*Wamo*.
Used as anthelm.

Burma where it grows at the root of old bamboos.

P. officinalis Fries
Ind. Baz.–*Gharikum*; H.–*Chhattri*; P.–*Kiain*.

Diur., laxt., expect., used as nervine tonic.

Contains agaric acid also called agaricin, which has the physiological effect of stopping the secretion of sweat and in overdoses causes vomiting and purging (U.S.D., 1310).

Found on the old trunks of various coniferous trees.

POLYSCIAS (*Araliaceae*)

P. fruticosa Harms syn. *Nothopanax fruticosus* Miq.
Plant—astrin., used in fevers.

Throughout the warmer parts of India, cultivated.

POLYTOCA (*Gramineae*)

P. barbata Stapf; see **Chionachne koenigii** (Spreng.) Thw.

PONGAMIA (*Leguminosae*)

P. glabra Vent.; see **P. pinnata** (Linn.) Merr.

P. pinnata (Linn.) Merr. syn. *P. glabra* Vent.
S. & H.–*Karanja*; B.–*Dahur karanja*; Bo. & P.–*Karanj*; Mal.–*Punnu*; Tam.–*Pungu*; Tel.–*Kranuga*.

Seeds—used as external application in skin diseases.

Oil from seeds—useful in cutaneous affections, herpes and scabies; used in rheumatism.

Seeds and roots—used as fish poison.

Fresh bark—used internally in bleeding piles.

Leaves—in form of a poultice applied to ulcers infested with worms.

Juice of roots—used for closing fistulous sores and for cleaning foul ulcers; given internally with equal quantities of cocoanut milk and lime water for gonor.

Seeds contain 27 to 36·4% of a bitter fatty oil and traces of an essen. oil (Chopra, 366; *J. Amer. pharm. Ass.*, 1925, 1086; *J. Indian Inst. Sci.*, 1923, 93; *Indian J. med. Res.*, 1934, 267); seeds yield fixed oil, three crystalline substances karanjin, pongamol and glabrin (*Proc. Indian Acad. Sci.*, vol. 15A 1942, 417; vol. 14A, 1941, 123); karanjin is the principle responsible for the curative properties of the oil (*Indian J. Pharm.*, 1940, 83; *Chem. Abstr.*, 1940, 6769); bitter principle from seeds effective in a large number of skin diseases (*Proc. Indian Sci. Congr.*, 1931 & 1933); roots also contain karanjin (*Ber. dtsch. chem. Ges.*, 1939, 93; *Chem. Abstr.*, 1939, 2520).

All over India on the banks of rivers and streams, especially near the seacoast and some forest localities.

POPULUS (*Salicaceae*)

P. alba Linn.
P.–*Chitabagnu, Safeda*; Kash.–*Fras*.

Bark—tonic, used to purify blood and in skin diseases, said to be useful in strangury.

Leaves contain glucd. pupulin, salicin; buds contain bitter substance (*Proc. chem. Soc., Lond.*, 1900, 89; *J. chem. Soc.*, 1900, 707; *Amer. J. Pharm.*, 1892, 226).

N.W. Himalayas.

P. ciliata Wall.
Nep.–*Bangikat*; Kash.–*Falsch, Palach*; P.–*Falsh*; H.–*Tilaunja*; Kumaon–*Chalmya*; Garhwal–*Syan*.

Bark—used as a tonic stim., and to purify blood.

Temperate Himalayas, 4,000-10,000 ft., from Kashmir to Bhutan.

P. euphratica Oliv.
P. & Bo.–*Bahan*; Ladakh–*Hodung*.
Bark—vermifuge.
Sind, Punjab, N.W. Himalayas.

P. nigra Linn.
Kash. & P.–*Frast*; Ladakh–*Yulatt*.

Liquor extracted from bark—depurative.

Buds—made into an ointment used for haemorrhoids; the balsam from these used as a remedy for colds.

Buds yield glucd., salicin, populin, chrysin, essen. oil (*Liebigs Ann.*, 1857, 372; *J. prakt. Chem.*, 1911, 483; *Ber. Schimmel u. Co., Lpz.*, 1912, Oct., 81).*

Planted in the N.W. Himalayas, Punjab and Baluchistan.

PORPHYRA (*Rhodophyceae*)

P. umbilicalis (L.) Ag. syn. *P. vulgaris* Ag.

Bo.–*Las.*

Demulc., alter., in scrofula.

Iodine. (Chopra, 519).

Manora Rocks, Sind.

P. vulgaris Ag.; see **P. umbilicalis** (L.) Ag.

PORTULACA (*Portulacaceae*)

P. meridiana Linn.; see **P. quadrifida** Linn.

P. oleracea Linn.

S.–*Lonika*; H.–*Khursa, Kulfa*; B.–*Baraloniya*; Bo.–*Kurfah*; M.–*Pasalai*; Mal.–*Koricchira*; Tam.–*Pulikkirai*; Tel.–*Pappukura.*

Herb—refrig., alter., useful as an article of diet in scurvy and liver disease.

Seeds—vermifuge.

Juice of stems—applied to prickly heat and to the hands and feet when a burning sensation is felt.

All over India, up to 5,000 ft. in the Himalayas.

P. quadrifida Linn.

S.–*Upadyki*; H. & B.–*Chhotaluniya*; Bo.–*Kota*; M.–*Sirupasalai*; Tam.–*Passalaikkirai*; Tel.–*Goddupavili.*

Fresh leaves—bruised and used as external application in erysipelas; an infusion used as a diur. in dysuria.

Seeds—considered vermifuge.

Throughout the warmer parts of India.

P. sativa Haw.; see **P. oleracea** Linn.

P. tuberosa Roxb.

Bo.–*Lunuk*; Marathi–*Jangligajar*; Tel.–*Boddakura.*

Fresh leaves—used as external application in erysipelas; as an infusion given internally in dysuria.

Sind, Bihar, Gujarat, dry districts of the Carnatic from S. Arcot to Travancore.

POTENTILLA (*Rosaceae*)

P. anserina Linn.

Leaves and roots—used in Europe as astrin.

Whole herb—considered astrin. and tonic.

Herb contains 0·28% essen. oil (*Amer. J. Pharm.*, 1942, 372; *Chem. Abstr.*, 1943, 499); it has a stim. action on the uterine muscle (*Amer. J. Pharm.*, 1944, 184).

W. Himalayas up to 16,000 ft., Kashgar.

P. fragarioides Linn.

Infusion of leaves—considered astrin. in N. Europe.

Temperate Himalayas, from Waziristan and Kashmir to Bhutan; Nilgiris, 7,000 ft.

P. fruticosa Linn.

P. – *Spangjha*; Ladakh – *Pinjung*; Nep.–*Chinyaphal.*

Infusion of leaves—used as astrin., subst. for tea.

From Kashmir, 8,000-12,000 ft., to Sikkim, 12,000-16,000 ft.

P. kleiniana W. & A.

Plant—astrin.

Fresh leaves—pounded and applied to abscesses.

Roots and stems—toxic, pounded and applied to bites of snakes and centipedes.

Temperate Himalayas, from Kashmir, 3,000-7,000 ft., to Sikkim, 4,000-9,000 ft., and Bhutan, Khasia Hills, 4,000 ft., Nilgiris, 6,000-7,000 ft.

P. nepalensis Hook.

P.–*Rattanjot.*

Root—depurative; the ashes applied with oil to burns.

W. temperate Himalayas, 5,000-8,000 ft., from Murree and Kashmir to Kumaon.

P. reptans Linn.

Herb—astrin., febge.

Root—astrin.

Watery infusion of herb—used for diar., looseness of bowels, etc.; externally as an astrin. lotion.

Rhizome contains tormenol (*Bull. Soc. Chim. biol., Paris*, 1932, 313; *Chem. Zbl.*, 1932, II, 721).

Kashmir.

P. sericea Linn.

Plant—astrin.

W. alpine Himalayas from Kashmir to Kumaon

P. supina Linn.

Root—febge., astrin., tonic.

N.W. Himalayas, up to 8,500 ft.

POTHOS (*Araceae*)

P. cathcarti Schott

Lakhimpur–*Hathidenkiya.*

Leaves—fried in ghee eaten to cure various pains.

Tropical Himalayas from Kumaon to Bhutan, Assam, Khasia Hills, Manipur.

P. scandens Linn.

Kan.–*Adikabiluballi*; Mal.–*Anapparuva*.

Stem and leaves—used in snake-bite.

Powdered leaves—applied to the body as a cure for small-pox.

Stem—cut up with camphor smoked like tobacco for asthma.

Throughout India.

POUZOLZIA (*Urticaceae*)

P. zeylanica Benn. syn. *P. indica* Gaud.

M.–*Kalluruki*.

Plant—used in syphilis, gonor. and snake-poison.

Throughout India.

P. indica Gaud.; see **P. zeylanica** Benn.

PRANGOS (*Umbelliferae*)

P. pabularia Lindl.

S.–*Avipriya*; H. & Pushtu–*Komal*; Bo. & P.–*Fiturasaliyun*; Pers.–*Badiankohi*.

Fruit—stim., carmin., stomch., diur., emmen., promotes the expulsion of the foetus; in decoct. used to cure the rot in sheep.

Seeds—stomch., aphrodis.

Roots—used to cure itch., as diur. and emmen.

Plant—considered heating.

Fruit contains essen. oil, alk., valeric acid ester (Dymock, Warden & Hooper, II, 140); fresh plant contains 2% essen. oil consisting of myrcene 48, α-pinene 4, camphene traces, borneol, dihydrocuminol (free and as acetate) 17·5, aldehyde traces and resinous residue 28% (*Zh. prikl. Khim., Mosk.*, 1935, 1055; *Chem. Abstr.*, 1936, 5359; *Acta Univ. Asiae med.*, No. 39, 1939, 13; *Chem. Abstr.*, 1940, 7529).

Kashmir, 6,000-11,000 ft.

PREMNA (*Verbenaceae*)

P. esculenta Roxb.

Leaves—diur., applied externally in dropsy.

Assam and Chittagong; also cultivated.

P. herbacea Roxb.

S.–*Bhumjambu*; H.–*Bharangi*; B.–*Bamanhati*; Marathi–*Gantubharangi*; Tam.–*Sirudekku*; Tel.–*Kuranelli*.

Root preparation—given internally for rheumatism.

Plant—used in scorpion-sting and snake-bite.

Subtropical Himalayas, 500-3,000 ft., from Kumaon to Bhutan, N. Circars; W. Ghats of Madras State.

P. integrifolia Linn.

S.–*Ganakasika*; H. & Bo.–*Arni*; B.–*Ganiari*; Mal.–*Munna*; Tam.–*Munnai*; Tel.–*Karnika*.

Decoct. of root—cordial, stomach., good for liver complaint.

Decoct. of plant—used in rheumatism and neuralgia.

Leaves—rubbed along with pepper administered in colds and fevers; in decoct. given for flatulence; in form of soup used as stomch. and carmin.

Stem bark contains alk. premnine; decreases force of contraction of heart and produces dilation of the pupils; another alk. ganiarine; (*J. Amer. pharm. Ass.*, 1947, 389; *Chem. Abstr.*, 1948, 3535).

Near the sea from Bombay to Malacca, Ceylon and the Andamans.

P. latifolia Roxb.

B.–*Gohara*; H.–*Bakar*; Tam.–*Munnai*; Tel.–*Peddanellikura*; P.–*Bankar*; Kumaon–*Agniu*.

Leaves—diur., given internally and applied externally in dropsy.

Milk of the bark—applied to boils.

Juice of bark—given to cattle in colic.

Bengal, N. Circars and Carnatic to Tinnevelly, near the coast in dry forest area.

P. tomentosa Willd.

Marathi–*Chambara*; Mal.–*Kattutekka*; Tam.–*Podaganari*; Tel.–*Naguru*.

Oil from root—arom., used as remedy for stomach disorders.

Madhya Pradesh, N. Circars, Deccan and Carnatic down to S. Travancore in deciduous forests up to about 4,000 ft.

PRIMULA (*Primulaceae*)

P. reticulata Wall.

Kumaon–*Bishkopra*.

Herb—used externally as anodyne; poisonous to cattle.

Central and E. Himalayas, 11,000-15,000 ft.

PRINSEPIA (*Rosaceae*)

P. utilis Royle

H., P. & Garhwal–*Bhekal*; Kumaon–*Bhekla*.

Oil from the shrub—rubft., applied externally in rheumatism.

21% fatty oil from the seeds; no constituent of medicinal value located in the oil. (*J. Indian chem. Soc.*, 1942, 183).

Outer Himalayas from Hazara to Bhutan, 2,000-9,000 ft., common on dry slopes and Khasia Hills.

PRISTIMERA (*Hippocrateaceae*)

P. indica (Willd.) a.c. Smith syn. *Hippocratea indica* Willd.

Leaves contain alk. (*Bull. Inst. bot. Buitenz.*, 1902, XIV, 17); pristimerin, the antibacterial principle isolated from the roots in 0·1% yield; toxic to mice when administered parenterally, 0·25 g./kg. intraperitoneally killing 5/5 mice; 0·5 g./kg. subcutaneously killing 5/5 mice; it is active *in vitro* against gram-positive cocci, ineffective against gram-negative organisms (*J. sci. industr. Res.*, 1951, 56B; *Chem. Abstr.*, 1951, 10511); root bark source of dulcitol; inner red bark yields 1·4-1·7, outer yellow covering 0·1-0·2 and pith 0% (*J. sci. industr. Res.*, 1951, 117B; *Chem. Abstr.*, 1951, 10508).

In hotter parts of India from Bihar, the Konkan and southwards.

PROSOPIS (*Leguminosae*)

P. spicigera Linn.

B. & Bo.–*Shami*; H.–*Jhand*; P.–*Jand*; S.–*Shami*; Tam.–*Kalisam*; Tel.–*Jammi*; Mal.–*Parampu.*

Pod—astrin.

Bark—used as remedy in rheumatism and scorpion-sting.

Flowers—pounded and mixed with sugar eaten by women during pregnancy as a safeguard against miscarriage.

Ashes—rubbed over the skin to remove hair.

Punjab, Rajputana, Bundelkhand, Gujarat, Sind and Baluchistan.

PRUNELLA (*Labiatae*)

P. vulgaris Linn. syn. *Brunella vulgaris* Linn.

P.–*Austakhadus*; Bo.–*Ustukhudus*; H.–*Dharu.*

Herb—antisp., expect., used for fevers and coughs, considered antirheumatic., alter. and tonic.

Green leaves—smeared with castor oil and warmed over fire applied externally to the anus in painful piles.

Bitter principle and essen. oil obtained from the herb (*Pharm. Post*, 1913, 625; *J. Soc. phys.-chem. russe*, 1903, 831).*

Temperate Himalayas, from Kashmir to Bhutan, 4,000-11,000 ft., Khasia Hills, 4,000-6,000 ft., Nilgiris, Pulneys, and Travancore mountains.

PRUNUS (*Rosaceae*)

P. amygdalus Batsch syn. *P. communis* Arcang.; *P. amygdalus* Baill.; *Amygdalus communis* Linn.

H., P., M. & Bo.–*Badam*; B.–*Bilatibadam*; S.–*Badama*; Tam.–*Vadumai*; Tel.–*Badamu.*

Seeds—demulc., stim., nervine tonic.

HCN-glucd., As 0·025 mg. in 100 g. fruit (*C.R. Acad. Sci., Paris*, 1912, 893; *Chem. Zbl.*, 1912, I, 1730; *J. chem. Soc.*, 1909, 927; *Arch. Pharm., Berl.*, 1908, 206, 509; 1909, 226, 542; 1910, 101; 1925, 563; *Ber. dtsch. chem. Ges.*, 1923, 857).*

Cultivated in the cooler parts of Punjab and Kashmir.

P. armeniaca Linn.

H.–*Khubani*, *Zardalu*; Kumaon–*Chola*; P.–*Gurdlu.*

Dried fruit—used as laxt. and refrig. in fevers.

Seeds contain fatty oil, ethereal oil, enzymes and amygdalin (*Chem. Zbl.*, 1927, I, 532; *Chem. News*, 1921, 162; *Ber. dtsch. pharm. Ges.*, 1922, 240; *J. Amer. chem. Soc.*, 1924, 2506; *Analyst*, 1929, 15); fruit contains lycopin, α-carotin, vitamin A (*Hoppe-Seyl. Z.*, 1933, 45; *Chem. Zbl.*, 1933, I, 3574; *J. Nutr.*, 1933, 83; *Chem. Zbl.*, 1933, I, 1644).*

Commonly cultivated in N.W. India, especially in the hills at 6,000-9,000 ft.

P. avium Linn.

Kash. & Kumaon–*Gilas.*

Fruit—tonic, astrin.

Leaves contain Ba (*Chem. News*, 1916, 62).

Cultivated in N.W. Himalayas up to 8,000 ft., especially in Kashmir.

P. cerasoides D. Don syn. *P. puddum* Roxb. ex Wall.

S. & Marathi–*Padmaka*; H. & Kumaon–*Paddam*; Bo.–*Padmakasta.*

Smaller branches—used as subst. for hydrocyanic acid.

Kernel—used in stone and gravel.

Amygdalin (*Arch. Pharm., Berl.*, 1906, 398); prunasetin (isoflavone), sakuranetin (*Sci. & Cult.*, 1942-43, 463, 498); puddumetin (flavone) (*J. Indian chem. Soc.*, 1945, 301; 1949, 329).

Wild in the temperate Himalayas from Garhwal at 3,000-6,000 ft. to Sikkim and Bhutan from 5,000-8,000 ft., Kodaikanal and Ootacamund. Often cultivated.

P. cerasus Linn.

H.–*Alubalu*; P.–*Gilas*, *Olchi.*

Bark—bitter, astrin., febge.

Kernel—nerve tonic; used for same purposes as hydrocyanic acid.

HCN (*Ber. Schimmel u. Co., Lpz.*, 1913, April, 109).

Cultivated in the Himalayas of the Punjab and N.W. Frontier Province up to 8,000 ft.

P. communis Huds.; see **P. domestica** Linn.

P. cornuta (Wall.) Steud.

H. & Kumaon-*Jamana*; Kash.-*Jaman*; P.-*Jamna*.

Oil from the kernels—good subst. for oil of bitter almonds.

HCN-glucd. (*Z. allg. öst. ApothVer.*, 1892, 330; *Arch. Pharm., Berl.*, 1905, 421; 1913, 56; *J. Pharm. Chim., Paris*, 1907, 194; 1912, 574).

Temperate Himalayas from Kurrum at 4,000 ft. to Sikkim and Bhutan at 8,000-12,000 ft.

P. domestica Linn. syn. *P. communis* Huds.

H. & B.-*Alu-bokhara*; M.-*Alpogadapazham*.

Fruit—laxt., refrig.; given in combination with other drugs in leucor., irregular menstruation and debility following miscarriage.

Cultivated in Kashmir and the Punjab plains.

P. domestica Linn. var. **insititia** Bailey syn. *P. insititia* Linn.

Bo. & H.-*Alubokhara*; Marathi-*Viraruruka*; S.-*Aluka*.

Fruit—laxt., refrig.

Himalayan region.

P. insititia Linn.; see **P. domestica** Linn. var. **insititia** Bailey

P. mahaleb Linn.

Bo.-*Gavala*; S.-*Priyunger*.

Kernels—used as subst. for hydrocyanic acid, tonic, in scorpion-sting.

Coumarin, salicylic acid, amygdalin (*Liebigs Ann.*, 1851, 83; 1852, 243; *Chem. Zbl.*, 1905, II, 1503).

Cultivated in Baluchistan. Probably also occurs in N.W. India.

P. padus Linn.

Properties similar to *P. cornuta*.

Europe and Asia

P. persica Batsch

H., P. & Kumaon-*Aru*; Kan.-*Pichesu*.

Flowers—diur., purg.

Fruit—stomch., demulc., antiscor.; considered to be useful as ascaricide.

HCN (*Analyst*, 1904, 105; *J. Amer. chem. Soc.*, 1896, 609; 1921, 1725).

Cultivated in the Himalayas, Kunawar up to 10,000 ft., Nilgiris at 5,000-7,000 ft., in the plains of N. India, Manipur and Baluchistan.

P. puddum Roxb. ex Wall.; see **P. cerasoides** D. Don

P. salicina Lindl. syn. *P. triflora* Roxb.

Fruit—in Indo-China considered stomch. and good for allaying thirst; given in arthritis.

Ava Hills.

P. triflora Roxb.; see **P. salicina** Lindl.

P. undulata Buch.-Ham.

Almora-*Aruwa*; Garhwal-*Aria*, *Gadharu*.

Kernels—contain an oil similar to bitter almonds.

Fruits and leaves contain HCN (*Arch. Pharm., Berl.*, 1906, 398, 670).

Kumaon, 6,000-8,000 ft., Sikkim, 8,000-12,000 ft., Khasia Hills, Bhutan and Nepal.

PSALLIOTA (*Agaricaceae*)

P. campestris (L.) Fr. syn. *Agaricus campestris* Linn.

S.-*Chhatra*; Bo.-*Alombe*; B. & H.-*Chhata*; Kash.-*Manskhel*; P.-*Bleophore*.

Tonic, laxt., aphrodis.

Juice contains a thermostable substance which increases the strength of contraction of the heart of the toad and acts on the rate of the heart of the dog (*Arch. Soc. Biol, Montevideo*, 1945, 261; *Chem. Abstr.*, 1946, 6646).

Common in many parts of India, chiefly in cattle-fields of central Punjab after rains, barren desert tracts of central and southern Punjab and also Baluchistan.

PSAMMOGETON (*Umbelliferae*)

P. biternatum Edgew.

Pushtu-*Ga-rgira*.

Plant—used as stomach.

Punjab Plain ascending the Himalayas up to 3,000 ft., Sind and Baluchistan.

PSEUDARTHRIA (*Leguminosae*)

P. viscida W. & A.

S.-*Sanaparni*; Tel.-*Muyyakuponna*.

Plant—used in biliousness, rheumatism, excessive heat and fever, diar., asthma, heart diseases, worms and piles.

Tropical zone, Western Peninsula.

PSIDIUM (*Myrtaceae*)

P. guajava Linn.

S.-*Mansala*; H. & P.-*Amrud*; B.-*Peyara*; Bo.-*Perala*; Tam. & Mal.-*Koyya*; Tel.-*Goyya*.

Bark of root—astrin., used in diar. of children.

Fruit—laxt.

Leaves—used as astrin. for bowels and for wounds and ulcers; their decoct. used in cholera for arresting vomiting and diar.

Leaves contain essen. oil, eugenol (*Chem. & Drugg.*, 1905, 14).

Cultivated and naturalized throughout India.

PSORALEA (*Leguminosae*)

P. corylifolia Linn.

S.–*Bakuchi*; H. & P.–*Babchi*; B.–*Latakasturi*; Bo.–*Bawachi*; Tam.–*Karpo-karishi*; Tel.–*Kalaginja*.

Seeds—used as stomch., deobstruent, anthelm., diur. and diaphor. in febrile conditions, in leprosy, leucoderma and other skin diseases, for scorpion-sting and snake-bite.

Oleo-resinous extract of seeds—application to leucoderma.

Seeds yield essen. oil and psoralen (*J. Indian chem. Soc.*, 1933, 41); seeds contain resin, essen. oil, a terpenoid oil, psoralen and isopsoralen (*Proc. Indian Acad. sci.*, vol. 5A, 1937, 351; *Chem. Abstr.*, 1938, 3549; *Indian J. Pharm.*, 1940, 83); psoralen and isopsoralen possess the curative action of psoralea in leucoderma (*Indian J. Pharm.*, 1943, 105; *Chem. Abstr.*, 1944, 1609); psoralidin also isolated (*J. sci. industr. Res.*, 1948, 28B; *Chem. Abstr.*, 1948, 7492; U.S.D., 1559).*

Throughout India.

PSYCHOTRIA (*Rubiaceae*)

P. ipecacuanha Stokes; see **Cephaelis ipecacuanha** (Brot.) A. Rich.

PTERIDIUM (*Polypodiaceae*)

P. aquilinum Kuhn syn. *Pteris aquilina* Linn.

P.–*Kakhash*; Tam.–*Parnai*.

Rhizome—astrin., anthelm.

Decoct. of rhizomes and fronds—given in chr. disorders arising from obstructions of the viscera and spleen.

Diet composed solely of this proved fatal to a heifer; contains catechol tannin (*J. comp. Path.*, 1945, 301; *Chem. Abstr.*, 1946, 6643).

Common in the Himalayas, and in the Khasia Hills at 2,000-8,000 ft. Extends to the Deccan and the Madras State.

PTERIS (*Polypodiaceae*)

P. aquilina Linn.; see **Pteridium aquilinum** Kuhn

PTEROCARPUS (*Leguminosae*)

P. indicus Willd.

Burm.–*Padauk*; Kan.–*Honne*; Tam.–*Vengai*; Tel.–*Ettavegisa*.

Gum from the tree—used as subst. for gum kino.

Kernel of the fruit—emetic.

Yields a red kino (*Ber. dtsch. pharm. Ges.*, 1913, 88; U.S.D., 609).

Eastern and Western Peninsulas.

P. marsupium Roxb.

H.–*Bijasar*; B.–*Pitsal*; Bo.–*Bibla*; S.–*Pitasara*; Mal.–*Karintakara*; Tam.–*Pirasaram*; Tel.–*Vengisa*.

Gum—a good astrin. in diar. and pyrosis, used for toothache.

Bruised leaves—useful external application to boils, sores and skin diseases.

Bark—astrin.

Yields gum kino, which contains kino-tannic acid (*J. chem. Soc.*, 1911, 1530; *Pharm. J.*, 1900, 226; 1903, 840; U.S.D., 608).

Western Peninsula and S. India.

P. santalinus Linn. f.

B. & S.–*Raktachandana*; Bo.–*Raktachandan*; H.–*Lalchandan*; Mal.–*Raktashandanam*; Tam.–*Sensandanam*; Tel.–*Raktachandanamu*.

Wood—astrin., tonic, used as cooling external application for inflam. and headache, in bilious affections and skin diseases, in fever, boils, and to strengthen the sight, diaphor., in scorpion-sting.

Fresh shoots yield glucd., colouring matter (*J. chem. Soc.*, 1912, 1061; *Arch. Pharm., Berl.*, 1929, 81; *Ber. dtsch. chem. Ges.*, 1934, 1403; *Chem. Zbl.*, 1934, II, 2681; U.S.D., 973).

Deccan, in the hills of Cuddapah, S. Kurnool, N. Arcot and Chingleput, up to 1,500 ft.

PTEROCYMBIUM (*Sterculiaceae*)

P. javanicum R. Br.

Burm.–*Tshaw*.

Gum—resembles tragacanth.

Malay Peninsula, Burma and the Nicobars.

PTEROPYRUM (*Polygonaceae*)

P. olivierii Jaub. & Spach

Las Bela–*Wekho*.

Plant—considered cure for sore throat and used for disinfecting pots and milk.

Sind and Baluchistan.

PTEROSPERMUM (*Sterculiaceae*)

P. acerifolium Willd.

S.–*Karnikara*; H., B. & Bo.–*Kanakchampa*; Kan.–*Kanakchampaka*; Tam.–*Vennangu*; Tel.–*Matsakanda*.

Flowers—used as a general tonic.

Flowers and bark—charred and mixed with kamala applied in suppurating small-pox.

Down on the leaves—used as haemostatic.

Sub-Himalayan tract and outer Himalayan valleys and hills up to 4,000 ft., Bengal, Chittagong, Khasia Hills, Manipur, N. Kanara and extensively planted in the Bombay State.

P. heyneanum Wall.
Tam.–*Polavu*; Tel.–*Loluga*; Uriya–*Bailo.*

Leaves—used in leucor., smoked like tobacco.

Western Peninsula.

P. suberifolium Lam.
S. & Bo.–*Muchukunda*; H. & B.–*Muchkand*; M.–*Madri*; Tam.–*Tadai*; Tel.–*Tada.*

Flowers—made into a paste with rice water used as application for hemicrania.

Flowers and bark—charred and mixed with kamala applied in suppurating small-pox.

N. Circars, Deccan in Mysore, Coimbatore, Cuddapah and N. Arcot, up to 3,000 ft., Nellore coast. Planted sometimes in the Bombay State.

PTERYGOTA (*Sterculiaceae*)

P. alata R. Br.
Assam–*Tula*; Chittagong–*Buddhanarikella*; Kan.–*Bekaro*; Mal.–*Porutonti*; Tam.–*Kodaittondi.*

Seeds—used in Sylhet as a subst. for opium.

Western Peninsula, Chittagong, Sylhet and the Andamans.

PTYCHOTIS (*Umbelliferae*)

P. ajowan DC.; see **Trachyspermum ammi** (Linn.) Sprague

PUERARIA (*Leguminosae*)

P. tuberosa DC.
H. & P.–*Siali*; B.–*Shimiabatraji*; Kumaon–*Biralipuna*; Bo.–*Dari*; Tel.–*Darigummadi.*

Root—given as demulc. and refrig. in fevers; peeled and bruised into a cataplasm used to reduce swellings; crushed and rubbed on the body in fever and rheumatism; used as emetic, tonic and lactag.

From the W. Himalayas to Sikkim, up to 4,000 ft. in Kumaon, lower hills of the Punjab, Mt. Abu, hilly tracts of Bengal and S. India.

PULICARIA (*Compositae*)

P. crispa Schultz-Bip.
H.–*Buhrna*; P.–*Gidi, Bui.*

Dried plant—applied as vulnerary to bruises, etc., of bullocks.

Bruised leaves—applied to head to relieve headache.

Punjab, Upper Gangetic Plain, Bihar, Bengal and Sind.

P. dysenterica Gaertn.

Root—popular remedy for dysen. in Europe.

Kashmir at 5,000-6,000 ft.

P. glaucescens Jaub. & Spach
Baluchi–*Kolbur.*

Plant—ravenously eaten by camels and reputed to be strengthening to them, but acts as a strong purg.

Punjab, the Salt Range and Murree, Waziristan and Baluchistan.

PUNEERIA (*Solanaceae*)

P. coagulans Stocks; see **Withania coagulans** Dunal

PUNICA (*Punicaceae*)

P. granatum Linn.
S.–*Dadima*; H.–*Anar-ke-per*; P.–*Anar*; B.–*Dalimgachh*; Bo.–*Dalimba*; Tam.–*Madalai*; Tel.–*Dalimma*; Mal.–*Dadiman*; Assam–*Dalim.*

Root bark and stem bark—astrin., anthelm., specific in tapeworm.

Rind of fruit—combined with aromatics like cloves, etc., useful in diar. and dysen.

Seeds—stomch.

Pulp—cardiac, stomch.

Fresh juice—cooling, refrig.

Bark yields alk. pelletierine, etc. (*Arch. Pharm., Berl.*, 1899, 49; *Ber. dtsch. chem. Ges.*, 1917, 368; 1919, 1005); root bark contains four alks., pseudo-pelletierine, pelletierine, isopelletierine and methylpelletierine (Henry, 1949, 55; U.S.D., 828).*

Wild in the Salt Range and in the Himalayas from 3,000-6,000 ft., and cultivated in many parts of India.

PUTRANJIVA (*Euphorbiaceae*)

P. roxburghii Wall.
S., H. & B.–*Putranjiva*; P.–*Jiyaputra*; Bo. & Kan.–*Putrajiva*; Mal.–*Pongalam*; Tam.–*Karupali*; Tel.–*Kudurujivi.*

Leaves, fruits and stones of fruits—given in decoct. in colds and fevers.

Throughout tropical India, wild and cultivated.

PYCNOCYCLA (*Umbelliferae*)

P. aucheriana Boiss.
Baluchi–*Bibi*.

Leaves—cooling, chewed to allay thirst.

Baluchistan.

PYGEUM (*Rosaceae*)

P. gardneri Hook. f.
Bo.–*Daka*.

Kernel of fruit—used as fish-poison.

Seeds smell strongly of hydrocyanic acid (*J. Bombay nat. Hist. Soc.*, 1941, 890).

W. Ghats of Madras and Bombay States, hills of Travancore, Malabar, Nilgiris, Pulneys, the Deccan, S. Mahrata Country and Konkan above 3,000 ft. and Mahabaleshwar plateau.

PYRETHRUM (*Compositae*)

P. indicum DC.; see **Chrysanthemum indicum** Linn.

PYRUS (*Rosaceae*)

P. aucuparia Gaertn.; see **Sorbus aucuparia** Linn.

P. communis Linn.
S.–*Amritaphala*; H. & P.–*Nashpati*; Kash.–*Naspati*; Tam.–*Perikkay*; Tel.–*Berikaya*.

Fruit—astrin., sedative, febge.

Largely cultivated in the N.W. Himalayas.

P. cydonia Linn.; see **Cydonia oblonga** Mill.

P. malus Linn.; see **Malus sylvestris** Mill.

QUAMOCLIT (*Convolvulaceae*)

Q. coccinea Moench
Root—sternutatory.

Cultivated in India.

Q. pennata Bojer
S.–*Kamalata*; H.–*Kamlata*; B.–*Tarulata*; Tam.–*Kembumalligai*; Tel.–*Kasiratnamu*; Kan.–*Kamalate*.

Leaves—used as a *lep* for carbuncles; pounded and applied to bleeding piles while a preparation of the juice with hot ghee administered internally.

Plant—considered to have cooling properties.

Common throughout India, in gardens and as a denizen.

Q. vulgaris Choisy; see **Q. pennata** Bojer

QUERCUS (*Fagaceae*)

Q. incana Roxb.
Kash.–*Silasupari*; P. & H.–*Ban*, *Banj*.

Acorns—given as diur. in gonor., and as astrin. in indign., diar. and in asthma.

Temperate Himalayas from the Salt Range and Murree to E. Nepal, 4,500-7,500 ft.

Q. infectoria Oliv.
S., H. & B.–*Majuphal*; Bo.–*Maiphal*; M.–*Mashikkay*.

Bark and acorns—astrin., used in intertrigo, impetigo, eczema.

Galls contain ellagic acid; main constituent of tannin is pentadigalloyl-glucose (*J. chem. Soc.*, 1897, 1131; *Chemikerztg*, 1908, 918; *Ber. dtsch. chem. Ges.*, 1914, 2485; *Liebigs Ann.*, 1923, 288; Wehmer, I, 222).*

Greece, Asia Minor and Syria.

Q. lamellosa Smith
Nep.–*Shalshi*; Lepcha–*Buk*.

Bark and acorns—astrin.

Sikkim, Bhutan, Manipur and Nepal.

Q. pachyphylla Kurz
Nep.–*Barakatus*; Lepcha–*Kashok*.

Bark and acorns—astrin.

Sikkim and Manipur.

QUISQUALIS (*Combretaceae*)

Q. indica Linn.
H.–*Rangoon-ki-bel*; Gujarati–*Barmasinivel*; Bo.–*Vilayati chambeli*; Tam.–*Irangunmalli*; Tel.–*Rangonimalle*.

Seeds—anthelm.

Gum (*Philipp. J. Sci.*, 1917, 157); seeds yield 27% oil containing linoleic, oleic, palmitic, stearic and arachidic acids, a sterol and a fatty acid, and an alk. used as anthelm. (*J. Chin. pharm. Ass.*, 1940, 132; *Chem. Abstr.*, 1941, 4913); seeds contain an active principle resembling santonin (*Schweiz. ApothZtg*, 1918, 522); seeds possess no anthelm. properties, at least against ascarides (*Amer J. med. Sci.*, 1926, 113).*

Cultivated all over India.

RADERMACHERA (*Bignoniaceae*)

R. xylocarpa K. Schum.
Bo.–*Kursingh*; Kan.–*Hulave*; Mal.–*Edankorna*; Marathi–*Bersinge*; Tam.–*Vedanguruni*.

Oil from wood—used in cutaneous affections.

Khandesh, Konkan, Deccan, S. Mahrata Country, W. Ghats of Madras State and N. Circars.

RANDIA (*Rubiaceae*)

R. densiflora Benth.

Bark—very bitter and given in Indo-China in the so-called forest fever.

Wood—prescribed in Cambodia in the treatment of paludism.

Assam, Naga Hills, Cachar, Travancore and the Andamans.

R. dumetorum Lam.

S.–*Madana*; H.–*Mainphal*; B.–*Menphal*; Bo.–*Gelaphal*; Kan.–*Karigidda*; Mal.–*Kara*; P.–*Mindla*; Tam.–*Marukkarai*; Tel.–*Mangara*.

Fruit—irritating emetic; used as fish-poison.

Pulp of fruit—used in dysen., anthelm., abortif.; ground to coarse powder applied to the tongue and palate for fevers and incidental ailments of children during teething.

Bark—astrin., given internally and also applied externally when bones ache during fever; externally applied as anodyne in rheumatism.

Aqueous extract of root bark actively insecticidal (U.S.D., 1568).

Fruits contain neutral and acid saponin, essen. oil, and acid resin; neutral saponin is the active constituent and lead in seeds (*Arch. Pharm., Berl.*, 1894, 489; *Chem. & Drugg.*, 1891, 460; *Indian J. med. Res.*, 1937, 131; *Chem. Abstr.*, 1938, 1866).

Sub-Himalayan tract from the Rawalpindi district eastwards, ascending in Sikkim up to 4,000 ft. Southwards extends to Chittagong and Peninsular India.

R. longiflora Lam.

Berries—used medicinally in Indo-China.

Assam, Chittagong and the Andamans.

R. tomentosa Hook. f.

Fruit—used as a hair tonic.

Tenasserim and Malay Peninsula.

R. uliginosa DC.

S.–*Gangati*; H.–*Pindalu*; B.–*Piralo*; Bo.–*Pendari*; Mal.–*Punankara*; Tam.–*Vargarai*; Tel.–*Peddamranga*.

Unripe fruit—roasted in wood ashes used as a remedy in dysen. and diar., the central portion consisting of the stone and seeds being rejected; astrin.

Root—boiled in ghee given in dysen. and diar.

Eastern, central, western and southern India, but not common in the north.

RANUNCULUS (*Ranunculaceae*)

R. aquatilis Linn. var. **capillaceus** DC. syn. *R. trichophyllus* Chaix

Plant—in Europe given in intermittent fevers, rheumatism and asthma.

Punjab Plain, W. Himalayas from the Indus to Kumaon, up to considerable elevations, Waziristan and Baluchistan.

R. arvensis Linn.

P.–*Chambul*.

Plant—in Europe used in intermittent fevers, gout and asthma.

Leaves contain HCN (*J. Pharm. Chim., Paris*, 1906, 355); flowers contain saponin (*Biochim. Terap. sper.*, 1931, 341; *Chem. Zbl.*, 1933, II, 76); plant contains anemonin and 1·74% protoanemonin; protoanemonin possesses irrit. properties (*Vet. J.*, 1938, 22; *Chem. Abstr.*, 1938, 4669).

W. Himalayas from Kashmir to Kumaon, plains of N.W. Punjab, Mt. Abu in Madhya Bharat.

R. falcatus Linn.

Baluchi.–*Wahwashu*.

Pounded plant—if applied to skin, produces blisters.

Kashmir, Punjab and Baluchistan.

R. lingua Linn.

Leaves—in Europe applied as a blistering agent to the joints in rheumatism.

Contains anemonin and 1·21% protoanemonin at third flower stage; protoanemonin is irrit. (*Vet. J.*, 1938, 22; *Chem. Abstr.*, 1938, 4669).

Temperate regions of Kashmir.

R. muricatus Linn.

Plant—used in Europe in intermittent fevers, gout and asthma.

Punjab Himalayas and Punjab, Kashmir.

R. pensylvanicus Linn. f.

Plant—used to raise blisters.

In swamps and rice fields in Upper Gangetic Plain, Khasia Hills up to 6,000 ft. and Nepal Terai.

R. sceleratus Linn.

Pers.–*Kabikaj*; Kumaon–*Shim*.

Plant—emmen., galact., poisonous.

Leaves—vesic., applied to the skin to raise blisters.

Plant contains anemonin (*Arch. Pharm., Berl.*, 1892, 182) and 2·50% protoanemonin just after full flower; considered most deadly poison (*Vet. J.*, 1938, 22; *Chem. Abstr.*, 1938, 4669).

Warm valleys of Himalayas, northern India, Mt. Abu, Bengal, Sind and Waziristan.

R. trichophyllus Chaix; see **R. aquatilis** Linn. var. **capillaceus** DC.

RAPHANUS (*Cruciferae*)

R. sativus Linn.

S.–*Mulaka*; H. & P.–*Muli*; B.–*Mula*; Bo.–*Mula*; Tam., Tel. & Mal.–*Mullangi*.

Juice of fresh leaves—diur., laxt.

Seeds—expect., peptic, diur., laxt., carmin.

Roots—used for urinary complaints, piles and gastrodynic pains.

Seeds yield essen. oil; As 0·01 mg. in 100 g. root (*C.R. Acad. Sci., Paris*, 1912, 893; *Chem. Zbl.*, 1912, I, 1730; Dymock, Warden & Hooper, I, 129); roots contain glucd., enzyme and methyl mercaptan (*Biochem. Z.*, 1926, 31).*

Cultivated all over India up to 16,000 ft.

RAUWOLFIA (*Apocynaceae*)

R. canescens Linn.

Contains the alk. rauwolscine, 0·1 in root bark, 0·2 in stem bark and 0·2% in the leaves (*J. Indian chem. Soc.*, 1941, 33; 1941, 485; 1943, 11; 1946, 6; 1951, 29; *Sci. & Cult.*, 1953, 109); rauwolscine found to be a cardiovascular depressant in experimental animals; preliminary experiments indicate a relatively high toxicity (*Sci. & Cult.*, 1942, 485; *Aust. J. Pharm.*, 1947, 857); rauwolscine has a direct action on the myocardium; injected intravenously nulls the effect of parasympathetic stimulation; depresses the tone of voluntary muscles (*Sci. & Cult.*, 1953, 338); alk. reserpine, which has sedative and hypotensive activity, isolated (*J. Amer. chem. Soc.*, 1954, 1381).*

Grows side by side with *R. serpentina*, inhabiting the moist and hot regions of India. It is found abundantly in Bengal particularly in the districts of 24 Parganas and Howrah.

R. serpentina Benth. ex Kurz

S.–*Sarpagandha*; H.–*Chotachand*; B. & Bo.–*Chandra*; Mal.–*Chuvannavilpuri*; Tel.–*Patala-agandhi*; Tam.–*Covannamilpori*.

Root—hypnotic, sedative, specific for insanity, reduces blood pressure, remedy in painful affections of the bowels; in decoct. employed in labours to increase uterine contractions.

Juice of leaves—used for removal of opacities of the cornea of the eyes.

Bihar variety of root yields 0·8-1·3% total alkaloids consisting of ajmaline, ajmalinine, ajmalicine, yellow alkaloids serpentine, serpentinine and amorphous bases; Dehra Dun variety of roots yield 1-1·3% total alkaloids but no yellow alk., contain two other bases, isomeric with ajmaline and ajmalinine together with alkaloids showing amphoteric characters. Besides the alkaloids root contains oleoresin and a sterol, serposterol; the resin fraction is physiologically active (I.P.C., 218); (*J. Indian chem. Soc.*, 1931, 667; 1932, 539; 1935, 37; *Pharm. Weekbl.*, 1932, 334; *Indian J. med. Res.*, 1933, 261); Bihar variety contains alks. ajmaline, ajmalinine, ajmalicine, serpentine and serpentinine; root bark yields 0·1% isoajmaline and 1·0% neoajmaline; whole root contains 0·01 and 0·1% respectively; two other alks. isolated from root bark in 0·02 and 0·1% yield (*J. Indian chem. Soc.*, 1939, 421; *Chem. Abstr.*, 1940, 2384); alk. rauwolfine decreases the heart rate of frogs, cats and rabbits (*Cardiologia*, 1937, 1; *Chem. Abstr.*, 1938, 5493); intravenous injection of serpentine 1 mg./kg. in dogs produced a fall of blood pressure and increase in the tone of small intestine and decrease in the peristaltic contractions of the intestine (*C.R. Soc. Biol., Paris*, 1940, 94, 369; *Chem. Abstr.*, 1942, 564, 833); crude extracts, total alks. and serpentine lower carotid blood pressure of normal cats, ajmaline and serpentinine increase pressure, the latter depresses the cardiac musculature, produces splenic contraction and stimulates respiration; total alks. and serpentine produce opposite effects (*Indian J. med. Res.*, 1942, 319; *Chem. Abstr.*, 1943, 2819); contains a principle with sedative and hypnotic properties (*Indian J. med. Res.*, 1943, 71; *Chem. Abstr.*, 1944, 5003); comparative pharmacology of total alks. of Bengal, Bihar and Dehra Dun plants (*Indian J. med. Res.* 1943, 215; *Chem. Abstr.*, 1944, 6392); alks. neoajmaline and isoajmaline isolated from Dehra Dun samples act as depressant to the intestines and cause fall of blood pressure at all doses in intact, spinal and decerebrate animals (*Indian J. med. Res.*, 1944, 177; *Chem. Abstr.*, 1946, 5148); a resin fraction produces sedative and hypnotic effects in experimental animals (*Indian J. med. Res.*, 1944, 183; *Chem. Abstr.*, 1946, 4148); serpentine has a depressor and vasodilator action on dog (*C.R. Acad. Sci., Paris*, 1946, 927; *Chem. Abstr.*, 1947, 1753); alk.-free oleoresin fraction from the roots produced sedative and hypnotic effects in animals (*Indian J. Pharm.*, 1947, 54; *Chem. Abstr.*, 1948, 2729; *J. Amer. pharm. Ass.*, 1947, 416; *Chem. Abstr.*, 1948, 3536); total alk. extract from Bihar variety is more toxic than from Dehra Dun (*Indian J. med. Res.*, 1948, 57; *Chem. Abstr.*, 1949, 2699); alk. reserpin isolated (*Experientia*, 1952, 338); reserpin a highly active alk., shows a very marked hypnotic effect and lowers the blood pressure (*Experientia*, 1953, 107).*

Sub-Himalayan tracts from Sirhind eastwards to Assam, especially in Dehra Dun, Siwalik range, Rohilkhand, N. Oudh, Gorakhpur ascending to 4,000 ft.; also Konkan, N. Kanara, S. Mahrata Country, W. and E. Ghats of Madras State, districts of Bihar as Patna and Bhagalpur, north and central Bengal.

REAUMURIA (*Tamaricaceae*)

R. hypericoides Willd.
Bo.–*Lanisah.*

Leaves—used in treatment of prurigo and itch.

Found in Sind and distributed to Afghanistan, Baluchistan, Persia, Arabia, Mediterranean coast and milder parts of N. Asia.

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REINWARDTIA (*Linaceae*)

R. indica Dum. syn. *R. trigyna* Planch.
P.–*Karkun, Balbasant*; Dec.–*Abai*; Dehra Dun—*Basant*; Kumaon–*Piuli.*

Used as a medicine for 'founder' in cattle.

Along the Himalayas from the Indus eastwards, Salt Range, Trans-Indus, Simla, Kumaon to Sikkim up to 6,000 ft., Assam, Chittagong, Bihar, Mt. Abu, Bombay, Konkan and Ghats, W. Ghats forests of S. Kanara and Mysore.

R. trigyna Planch.; see **R. indica** Dum.

REMIREA (*Cyperaceae*)

R. maritima Aubl.

Infusion of root—given as sudorific and diur. in Brazil and Guiana.

Common in sea-sand in Kanara.

REMUSATIA (*Araceae*)

R. vivipara Schott
Bo. & Marathi–*Rukhalu.*

Root—made into an ointment with turmeric used as remedy for itch.

Juice—with cow's urine considered alexipharmic.

Subtropical Himalayas, Khasia Hills, Chota Nagpur, Bombay State and Mysore.

RESEDA (*Resedaceae*)

R. odorata Linn.
Arab.–*Khuzam.*

Root—acrid, used as a laxt., diaphor., and diur. in Spain.

Seeds—applied externally as resolv.

Widely cultivated in Indian gardens.

RHABDIA (*Boraginaceae*)

R. lycioides Mart.; see **Rotula aquatica** Lour.

RHAMNUS (*Rhamnaceae*)

R. dahuricus (Lawson in Fl. Br. Ind., I, 639); see **Rhamnus virgata** Roxb.

R. virgata Roxb. syn. *R. dahuricus* (Lawson in Fl. Br. Ind., I, 639)
H.–*Chadua*; P.–*Tadru, Chetain*; Kumaon–*Spiti.*

Fruit—bitter, emetic, purg., given in affections of the spleen.

Oxymethyl-anthraquinones, rhamnose (*Bull. Sci. pharm.*, 1924, 135; *C.R. Acad. Sci., Paris,* 1924, 1312; 1925, 925; *Arch. Pharm., Berl.*, 1914, 165).*

Trans-Indus, Punjab Himalayas, 2,500-9,000 ft., between 5,000 and 10,000 ft. from the Indus eastwards to Simla and Bhutan, W. Ghats of Madras State, 5,000-7,000 ft.

R. nepalensis Laws.

Fruits—pounded and macerated in vinegar prescribed in herpes in Indo-China.

Central and E. Himalayas, Khasia Hills, Assam.

R. purpurea Edgew.
P.–*Batsinjal, Kunji*; Jaunsar—*Luhish.*

Fruit—purg.

W. Himalayas from Kashmir to Kumaon up to 9,000 ft.

R. triquetra Wall.
P.–*Gardhan*; Almora–*Gaunta*; Dehra Dun–*Gaunt*; Garhwal–*Gaunth.*

Bark—toxic, astrin., deobstruent.

Trans-Indus, Himalayas and sub-Himalayan tract from the Indus eastwards to Kumaon between 3,000 and 7,000 ft., Salt Range, very likely introduced on a few hills of the Bombay Deccan.

R. wightii W. & A.
Bo.–*Raktarohida*; Tam.–*Peyppula.*

Bark—tonic, astrin., deobstruent.

Bitter principle 1·23%, tannin 2·[illegible]%, cathartic acid 4·2% (Wehmer, II. 741; *Pharm. J.*, Feb. 1888).

W. Ghats in the Nilgiris and Pulney Hills up to 7,000 ft. (apparently not in Bombay State except cultivated in a few isolated places).

RHAPHIDOPHORA (*Araceae*)

R. laciniata (Burm. f.) Merr.
Bo. & Marathi–*Ganesh kanda*; Tam.–*Ilattimaravalai.*

Juice of the plant—used in snake-bite and scorpion-sting.

Deccan Peninsula, Coromandel Coast, Malabar and southwards to Ceylon.

R. pertusa Schott; see **R. laciniata** (Burm f.) Merr.

RHAZYA (*Apocynaceae*)

R. stricta Dcne.

H.-*Sundwar*; Bo.-*Sewar*; P.-*Gandera, Vena*.

Leaves—bitter tonic; juice given to children with milk for eruptions; infusion useful in sore throat, low fevers and general debility.

Fruits and leaves—considered efficacious in cases of boils and eruptions.

Punjab, Sind, Baluchistan and Waziristan.

RHEUM (*Polygonaceae*)

R. acuminatum Hook. f. & Th.

Uses same as of *R. emodi*.

Sikkim Himalayas, 10,000-13,000 ft.

R. emodi Wall.

H.-*Hindirevandchini*; B.-*Banglarevanchini*; Bo.-*Ladaki-revandachini*; S.-*Revatchini*; P.-*Rewandchini*; Tam.-*Nattirevalchini*; Tel.-*Natturevalchinni*.

Rhizomes and roots—purg., astrin. tonic.

Rhizomes yield glucd. rhaponticin, chrysophanic acid (*Apothekerztg, Berl.*, 1921, 169; *J. chem. Soc.*, 1915, 946; *Pharm. Weekbl.*, 1917, 1234); rhizomes and roots contain as their chief constituents certain anthraquinone derivatives (I.P.C., 220); root contains rhein, emodin (*J. Indian Inst. Sci.*, 1933, 1); rhizomes yield 0·05% essen. oil containing eugenol, a terpene alcohol and a product believed to be methyl heptyl ketone (*J. Indian Inst. Sci.*, 1935, 134A; *Chem. Abstr.*, 1936, 3945); leaves contain 1·34% oxalic acid (*Indian J. med. Res.*, 1938, 671; *Chem. Abstr.*, 1938, 7154); leaves may cause fatal poisoning (*Bull. Acad. Med. Belg.*, 1941, 605; *Chem. Zbl.*, 1942, 1658; *Chem. Abstr.*, 1943, 3177); of the ten Indian varieties assayed, seven agreed with B.P. and U.S.P.; three below B.P. but acceptable by U.S.P. standards (*Indian J. Pharm.*, 1944, 55; *Chem. Abstr.*, 1946, 3227); Indian rhubarb contains emodin and chrysophanic acid; diluted alcohol extract showed the following percentages: Kashmir 35·28, Nepal 30·57, Punjab 39·97, thus satisfying U.S.P. standard of not less than 30%; powdered drug devoid of emetic action in 20 g. doses (*J. Amer. pharm. Ass.*, 1946, 148; *Chem. Abstr.*, 1946, 6749); Indian rhubarb may replace Chinese drug (*Indian J. Pharm.*, 1945, 89; *Chem. Abstr.*, 1946, 6753); observations on cats show that the hydroxymethyl-anthraquinone content of rhubarb closely parallels purg. potency (*Indian J. med. Res.*, 1945, 129; *Chem. Abstr.*, 1946, 6758).*

Sub-alpine and alpine Himalayas, 11,000-12,000 ft.

R. moorcroftianum Royle

Uses same as of *R. emodi*.

Western Himalayas and Kumaon.

R. nobile Hook. f. & Th.

Sikkim—*Tchuka*.

Uses same as of *R. emodi*.

Interior ranges of Sikkim Himalayas, 13,000-15,000 ft.

R. officinale Baillon

Rhizomes and roots—purg.

Chrysophanic acid, rhein., emodin, etc. (*Pharm. Weekbl.*, 1904, 177; *Arch. Pharm., Berl.*, 1907, 141).

S.E. Tibet and W. and N.W. China.

R. palmatum Linn.

Ind. Baz.-*Rewandchini*.

Rhizomes and roots—purg.

Chrysophanic acid, emodin, etc. (*Ber. dtsch. chem. Ges.*, 1882, 902; *Arch. Pharm., Berl.*, 1918, 91).

China.

R. spiciforme Royle

Garhwal—*Archu*; Ladakh-*Lachu*.

Root—purg.

Western Himalayas, in the drier ranges, from Kumaon, 14,000-16,000 ft., westwards to W. Tibet, 9,000-14,000 ft.

R. webbianum Royle.

Garhwal-*Archu*; Ladakh-*Lachu*; Nep.-*Padamchal*.

Root—laxt.

Central and W. alpine Himalayas, 10,000-14,000 ft.

RHINACANTHUS (*Acanthaceae*)

R. communis Nees; see **R. nasutus** Kurz.

R. nasutus Kurz syn. *R. communis* Nees

S.-*Yuthikaparni*; H.-*Palakjuhi*; B.-*Juipana*; Bo.-*Gachkaran*; Mal.-*Nagamulla*; Tel.-*Nagamalle*; Tam.-*Nagamalli*.

Root, leaves and seeds — useful remedy for ringworm and other skin diseases.

Roots—boiled in milk used as aphrodis.; antid. to snake-bite.

Rhinacanthin (Wehmer, II, 1144; Year Book of Pharmacy, 1881, 197).

Throughout India.

RHIZOPHORA (*Rhizophoraceae*)

R. mangle Roxb.; see **R. mucronata** Lam.

R. mucronata Lam.

B.-*Bhora*; Bo.-*Kandel*; Kan.-*Kandale*; Mal.-*Pikantal*; Tam.-*Kandal*; Tel.-*Uppuponna*.

Bark—astrin., used as cure for diabetes.

Tannin (*J. Soc. chem. Ind., Lond.*, 1917, 188).

Along muddy shores and tidal creeks of India.

RHODODENDRON (*Ericaceae*)

R. anthopogon D. Don

Kash.–*Tazak-tsum*; P.–*Nichni*; Nep.–*Dhupi*; Bhutia–*Palu*.

Leaves—arom., stim., administered as an errhine to produce sneezing.

Alpine Himalayas, 11,000-16,000 ft., from Kashmir to Bhutan.

R. arboreum Sm.

P.–*Ardawal*; Garhwal–*Burans*; Kumaon–*Bras*; Kan.–*Bili*; Mal.–*Kattupuvarsu*; Tam.–*Alingi*.

Young leaves—poisonous; applied to forehead for headache.

Ericolin (Wehmer, II, 909).

Temperate Himalayas, from Kashmir to Bhutan, 4,000-11,000 ft., Khasia Hills, 4,000-6,000 ft., Nilgiris, Pulneys, Travancore, above 5,000 ft.

R. barbatum Wall. ex G. Don

Nep.–*Guras*.

Used as a fish poison.

Contains tox. bitter substance andromedotoxin (*Arch. Pharm., Berl.*, 1885, 905; 1891, 552).

Temperate Himalayas from Kumaon to Bhutan at 8,000-12,000 ft., Sikkim.

R. campanlatum D. Don

H.–*Cherailu*; Kash.–*Gaggar*; Garhwal—*Chimura*; Kumaon—*Chimul*; P.–*Simrung*.

Leaves—mixed with tobacco and made into a snuff used in colds and hemicrania; used in chr. rheumatism, sciatica and syphilis; poisonous to goats.

Dried twigs and wood—used in phthisis and chr. fevers in Nepal.

Contains tox. substance like andromedotoxin (*Rep. Sch. trop. Med. Calcutta*, 1936; *Proc. Indian Sci. Congr.*, 1937, 390).

Alpine Himalayas, from Kashmir to Bhutan, 9,000-14,000 ft.

R. cinnabarinum Hook. f.

Nep.–*Bulu*; Lepcha–*Kechung*.

Leaves—poisonous to cattle and goats.

Tox. bitter principle (*Arch. Pharm., Berl.*, 1885, 905).*

Sikkim, 10,000-12,000 ft., and Bhutan 10,000 ft.

R. falconeri Hook. f.

Nep.–*Kurlinga*.

Used as fish poison.

Tox. bitter substance, glucd. ericolin (*Arch. Pharm., Berl.*, 1885, 905; 1889, 277; 1891, 552).

From east Nepal to Bhutan at 9,000-13,000 ft.

R. javanicum Benn.

Leaves—used in rheumatism and syphilis.

Leaves contain andromedotoxin (*Arch. Pharm., Berl.*, 1889, 164; 1891, 552).

Malay Peninsula.

R. lepidotum Wall.

Bhutia–*Tsaluma*; Garhwal–*Taghistra*; Simla–*Taliori*; Tehri-Garhwal–*Simris*.

Uses similar to *R. anthopogon.*

Temperate and alpine Himalayas, 8,000-15,000 ft., from KashmirtoBhutan.

R. setosum D. Don

Bhutia–*Tsallu*.

Uses similar to *R. anthopogon.*

Sikkim, 13,000-16,000 ft., and Nepal.

RHUS (*Anacardiaceae*)

R. chinensis Mill. syn. *R. semialata* Murr.

H.–*Tatri*.

Fruit—used in colic.

Tannin, gallic acid (*Arch. Pharm., Berl.*, 1913, 468; *Chemikerztg*, 1912, 1201).

Outer Himalayan ranges, 3,000-7,000 ft., from the Indus eastwards, Khasia and Naga Hills.

R. coriaria Linn.

H.–*Tatrak*; B.–*Sumok*; Bo.–*Sumak*.

Astrin., styptic, tonic, diur., used in dysen., haemoptysis, conjunctivitis.

Leaves and fruits contain tannin (Wehmer, II, 708).

Extensively cultivated in Spain, Italy and Sicily. Wild in the Canaries and Madeira, in the Mediterranean region, around Black Sea, in the Trans-Caucasian Provinces, Persia and Afghanistan.

R. insignis Hook. f.

Nep.–*Kagphulai*; Lepcha–*Sehr*.

Juice—vesic., given in colic.

Inner valleys of Sikkim Himalayas, 3,000-6,000 ft., and Khasia Hills, 4,000 ft.

R. parviflora Roxb.

H. & P.–*Raitung*; Almora–*Tang*; Garhwal & Kumaon–*Tunga*; Kash.–*Samak*.

Fruit—used medicinally and when mixed with salt, acts like tamarind.

N.W. Himalayas, from the Sutlej to Nepal, 2,000-5,000 ft., Pachmarhi Hills in Madhya Pradesh, Rampa Hills in the Godavari district.

R. punjabensis J. L. Stew. ex Brand.

B.–*Arkhar*.

Juice—vesic., corrosive.
N.W. Himalayas, Kunawar, 6,000 ft., Rajaori and Bashahr, 2,500-8,000 ft.

R. semialata Murr.; see **R. chinensis** Mill.

R. succedanea Linn.
S.–*Karkata sringi*; H.–*Kakrasingi*; Bo.–*Takadasingi*; B.–*Kakrasringi*; Kan.–*Karkatakashringi*; Tam.–*Karkkadagachingi*; Tel.–*Karkkarasringi*; P.–*Arkhol*; Khasia–*Dingkain*.

Thorn-like excrescences on the branches—astrin., given to children suffering from diar. and dysen.

Juice of leaves—blisters the skin.

Fruit—used in treatment of phthisis.

Fruits yield Japan wax, leaves contain tannin (Wehmer, II, 709; *Ber. dtsch. chem. Ges.*, 1907, 4784; *Arch. Pharm., Berl.*, 1909, 650; *Bull. Soc. chim. Paris*, 1911, 608; *C.R. Acad. Sci., Paris*, 1932, 405); milky juice yields laccol which is identical with urushiol (U.S.D., 1499).

Temperate Himalayas from Kashmir, 3,000-6,000 ft., to Sikkim, 5,000-6,000 ft., Bhutan, Khasia Hills, 2,000-6,000 ft., and Sind.

R. wallichii Hook. f.
Nep.–*Chosi*; P.–*Arkhar*; Garhwal–*Konki*; U.P.–*Akoria*.

Juice of leaves—corrosive, vesic.

N.W. Himalayas from Kashmir to Nepal, 5,000-8,000 ft.

RHYNCHOCARPA (*Cucurbitaceae*)

R. foetida (Clarke in Fl. Br. Ind., II, 627, partim, non Schrad.); see **Kedrostis rostrata** Cogn.

RHYNCHOSIA (*Leguminosae*)

R. minima DC.
Marathi–*Dhaktaranghevada*; Gujarati–*Nahanikamalavel*; Kan.–*Ghattavare*; Tel.–*Nela alumu*.

Leaves—used as abortif.

Everywhere in the plains of India, ascending to 4,000 ft. in the Himalayas.

RHYNCHOSPERMUM (*Compositae*)

R. verticillatum Reinw.
P.–*Hukmandaz*.

Plant—stated to be used medicinally in Kashmir.

Temperate Himalayas from Kashmir, 5,000 ft., to Sikkim, 6,000 ft., and Bhutan, Khasia Hills, 5,000 ft.

RHYNCHOSTYLIS (*Orchidaceae*)

R. refusa Bl.
Plant—emol.

Throughout India.

RIBES (*Saxifragaceae*)

R. grossularia Linn.
P.–*Amlanch*; Kumaon–*Baikunti*.

Fresh leaves contain HCN (*Arch. Pharm., Berl.*, 1906, 671).

Alpine western Himalayas, from Kumaon to Kashmir, 9,000-12,000 ft.

R. nigrum Linn.
P.–*Nabar*; Kumaon–*Paper*; Lahoul–*Ashuta*.

Fruit—laxt., cooling, anodyne.

Leaves—used as diur., refrig. and detergent in Germany.

Buds contain essen. oil (*Ber. Schimmel u. Co., Lpz.*, 1907, April, 114); fruits contain malic, citric and tartaric acids and pectin (*J. Soc. chem. Ind., Lond.*, 1926, 301T); buds yield essen. oil containing nopinene, *l*-sabinene, *d*-caryophyllene, *d*-sabinene, phenols including β-naphthol (*Parfums de Fr.*, 1937, 241; *Chem. Abstr.*, 1938, 727; *Parfums de Fr.*, 1937, 33; *Chem. Abstr.*, 1937, 4057).

Kunawar and dry inner valleys of Kashmir.

R. orientale Desf.
P.–*Nyaiphulanch*; H.–*Gwaldakh*; Ladakh–*Askutar*.

Berries—purg.

Arid tracts of inner Himalayas, between 6,500 and 14,000 ft., from the Indus to Nepal.

R. rubrum Linn.
P.–*Dak*.

Fresh leaves contain HCN (*C.R. Acad. Sci., Paris*, 1905, 448).

Western Himalayas, from Kumaon to Kashmir, 8,000-12,000 ft.

RICINUS (*Euphorbiaceae*)

R. communis Linn.
S.–*Eranda*; H.–*Arand*; B.–*Bherenda*; Bo.–*Erendi*; Assam–*Eri*; Kan.–*Manda*; Mal.–*Erandam*; Tam.–*Amanakku*; Tel.–*Erandamu*.

Seeds—purg., counter-irrit., in scorpion-sting, fish poison.

Oil from seeds—purg.

Leaf—applied to the head to relieve headache and as poultice for boils.

Alk. ricinine, toxalbumin ricin (*Arch. Pharm., Berl.*, 1917, 513; *Amer. J. Physiol.*, 1905, 259); beans yield 45-50% of a fixed oil (U.S.D., 238)*.

Cultivated throughout India and naturalized near habitations.

RIVEA (*Convolvulaceae*)

R. cuneata Wight; see **Argyreia cuneata** Ker

R. ornata Chois.
Bo. & Marathi–*Phand*; S.–*Phanji*; Tam.–*Muchuttai*; Tel.–*Bodditige*.

Juice of the plant—used in an ointment for phthiriasis and in a preparation for piles.

Konkan, Deccan and Carnatic.

ROSA (*Rosaceae*)

R. alba Linn.

B.–*Swet gulab*; H.–*Gulab*; Bo.–*Gul*; Kan.–*Mullusevantige*; P.–*Gulseoti*; S.–*Bhringeshtha*.

Flowers—used as a cooling medicine in fever and in palpitation of heart.

Petals—laxt.*

Cultivated in India.

R. banksiae R. Br.

Root—bitter, astrin., considered tonic and anthelm.

Leaves—considered a good vulnerary.

Cultivated in India.

R. chinensis Jacq. syn. *R. indica* Linn.

B.–*Kat gulab*; P.–*Sada gulab*.

Fruits—applied to wounds, sprains, injuries and foul ulcers in China.

Cultivated in India.

R. centifolia Linn.

H. & P.–*Gulab*; B.–*Golap*; Kan.–*Gulabi*; Mal.–*Gulabapushpam*; S.–*Devataruni*; Tam.–*Irosa*; Tel.–*Roja*.

Root—astrin.

Petals—laxt., given in form of a syrup to infants.

Cultivated in India.

R. damascena Mill.

S.–*Shatapatri*; H.–*Gulab ke phul*; B.–*Golap-phul*; Bo.–*Gulab*; Kan.–*Panniru*; Mal.–*Penimirpushpam*; Tam.–*Irosa*; Tel.–*Gulabi*.

Petals—applied externally as astrin.; made into a conserve with equal parts of white sugar, known as *gulkand*, used as tonic and fattening.

Buds—astrin., considered aper., cardiacal, tonic cephalic, removing bile and cold humours.

Essen. oil (*Ber. Schimmel u. Co., Lpz.*, 1920, 50; *J. Soc. chem. Ind., Lond.*, 1922, 192).

Cultivated all over India.

R. gallica Linn.

H. & B.–*Gulap*.

Petals—tonic, astrin., used in debility.

Cultivated in India.

R. indica Linn.; see **R. chinensis** Jacq.

R. moschata Herrm.

S.–*Kubjaka*; H.–*Kujai*; B.–*Kuja*.

Beneficial in bilious affections, burning of skin and eye diseases.

Temperate central and western Himalayas, from Murree to Nepal, 2,000-11,000 ft.

R. multiflora Thunb.

Fruits—used as an application to foul ulcers, wounds, sprains and injuries.

Cultivated in India.

ROSCOEA (*Zingiberaceae*)

R. purpurea Royle

Root—used in vet. medicine.

Central and eastern Himalayas, from Kumaon to Sikkim, ascending to 10,000 ft., Assam, the Khasia Hills.

ROSMARINUS (*Labiatae*)

R. officinalis Linn.

H.–*Rusmari*.

Oil—carmin., stim.,

Essen. oil (*Ber. Schimmel u. Co., Lpz.*, 1904, Oct., 82; *Parfum. mod.*, 1924, 232; *Bull. imp. Inst., Lond.*, 1927, 107; U.S.D., 993); fresh leaves yield essen. oil 1·3-2·0% (*J. Amer. pharm. Ass.*, 1932, 30).

Indigenous to south of Europe, Asia Minor and N. Africa. Cultivated in gardens in India.

ROTULA (*Boraginaceae*)

R. aquatica Lour.

S.–*Pashanabheda*.

Root—used in piles, stone in the bladder and venereal diseases.

Throughout India in river-beds.

ROUREA (*Connaraceae*)

R. santaloides W. & A.; see **Santaloides minus** Schellenb.

ROYLEA (*Labiatae*)

R. elegans Wall.

H.–*Patkarru*; P.–*Kauri*; Garhwal & Kumaon–*Titpati*.

Infusion of leaves—bitter, tonic, febge.; drunk for contusions produced by blows.

W. Himalayas, from Kashmir to Kumaon, 2,000-5,000 ft.

RUBIA (*Rubiaceae*)

R. cordifolia Linn.

B.–*Manjistha*; H., Bo. & P.–*Manjit*; S.–*Manjistha*; Tam.–*Manjitti*; Tel.–*Manjishtatige*; Mal.–*Manjetti*.

Root—tonic, alter., astrin.

Stem—used in cobra-bite and scorpion-sting.

Glucd. munjistin (*J. chem. Soc.*, 1893, 1157).

Throughout India in hilly districts.

R. tinctorum Linn.

P.–*Bacho*; Bo.–*Manyunth*.

Plant—considered in Europe as astrin., and diur.

Root—reputed effectual for promoting menstrual and urinary discharges.

Roots contain alizarin and purpurin (U.S.D., 1573).

Kashmir, Sind and Baluchistan, planted.

RUBUS (*Rosaceae*)

R. fruticosus Linn.

P.–*Alish, Akhi.*

Decoct. of root—useful for relaxed bowels and dysen., and against whooping-cough in its spasmodic stage.

Infusion of leaves—taken to stop diar. and for some bleedings.

Plant—cordial astrin., remedy for looseness of bowels.

Leaves contain lactic, succinic, malic and oxalic acids (*Hoppe-Seyl. Z.*, 1923, 309); wild fruits and big fruits contain cyanidin-monoglucoside (*Helv. chim. acta*, 1930, 1067; *Chem. Zbl.*, 1930, II, 3295).

W. temperate Himalayas, 3,000-7,000 ft.

R. moluccanus Linn.

Kumaon–*Katsol*; Lepcha–*Sufokji*; Nep.–*Bipemkanta.*

Leaves–astrin., emmen., abortif.

Fruit—considered a useful remedy for the nocturnal micturition of children.

Central and eastern tropical and temperate Himalayas from Kumaon to Sikkim at 3,000-7,000 ft.; Assam and Khasia Hills at 3,000-5,000 ft.; W. Ghats from Mahabaleshwar southwards to Travancore, Nilgiri and Pulney hills. Rarely in E. Ghats.

R. saxatilis Linn.

Used as subst. for *R. fructicosus.*

W. temperate Himalayas in the Tibetan region, from Kashmir to Kumaon, 10,000-11,000 ft.

RUELLIA (*Acanthaceae*)

R. prostrata Poir.; see **Dipteracanthus prostratus** Nees

R. suffruticosa Roxb.; see **Dipteracanthus suffruticosa** Voigt

RUMEX (*Polygonaceae*)

R. acetosa Linn.

English–*Dock sorrel.*

Plant—used in scurvy.

Leaves—refrig., diur., used as a cooling drink in febrile diseases in Europe.

Oxalates and free oxalic acid (*C.R. Acad. Sci., Paris*, 1886, 1043); acid potassium oxalate and tartaric acid (U.S.D., 1574); potassium binoxalate (*Pharm. J.*, 1927, 105); oxymethyl-anthraquinone (*Bull. Sci. pharm.*, 1926, 138).

W. Himalayas, from Kashmir to Kumaon, 8,000-12,000 ft.

R. acetosella Linn.

S.–*Chutrika*; B.–*Chukapalam.*

Fresh plant juice—refrig., diaphor., diur., antiscor., used in Europe for urinary and renal troubles.

Contains acid potassium oxalate and tartaric acid (U.S.D., 1574; *Boll. Soc. eustach.*, 1933, 217).

E. Himalayas and Sikkim, 7,000-8,000 ft.

R. crispus Linn.

S.–*Amla-betasa.*

Root—mildly laxt. and astrin.

Emodin, chrysophanic acid, essen. oil (*C.R. Acad. Sci., Paris*, 1886, 1043; *Pharm. J.*, 1927, 105; *Chem. Zbl.*, 1920, III, 353; U.S.D., 1574).

Europe and N. Asia.

R. dentatus Linn.

S.–*Changeri*; H.–*Ambavati.*

Root—used as astrin. application in cutaneous disorders.

Khandesh, S. Mahrata Country, S. India, Kumaon, N.W. India, Sind.

R. maritimus Linn.

H. & P.–*Jungli palak*; B.–*Bunpalung*; P.–*Bijband, Jungli palak.*

Plant—cooling.

Leaves—applied to burns.

Seeds—aphrodis.

Seeds contain 5·1% tannin (Wehmer, I, 277; *Pharm. J.*, 1911, 350).

Marshes of Assam, Sylhet, Cachar and Bengal.

R. nepalensis Spreng.

Roots—purg., subst. for rhubarb.

Chrysophanic acid (Wehmer, I, 277; *Ber. dtsch. chem. Ges.*, 1896, 325).

Temperate Himalayas, 4,000-12,000 ft., W. Ghats, Nilgiris and Pulney Hills.

R. scutatus Linn.

English–*French sorrel.*

Herb—refrig., astrin., given in dysen.

W. Himalayas.

R. vesicarius Linn.

S.–*Chukra*; H., B. & Bo.–*Chuka*; Tam.–*Shakkankirai*; Tel.–*Chukkakura*; P.–*Saluni.*

Leaves—cooling, aper., diur., astrin., used in snake-bite.

Seeds—cooling, prescribed roasted in dysen., and scorpion-sting.

Juice—cooling, useful in heat of the stomach and to allay the pain of toothache, and by its astrin. properties to check nausea.

Indigenous to W. Punjab, the Salt Range and Trans-Indus hills. Found in most parts of India in a state of cultivation or as a garden-escape.

RUNGIA (*Acanthaceae*)

R. parviflora Nees
S.–*Pindi*; Gujarati–*Mothokhadsalio*; Tam.–*Punakapundu*; Tel.–*Pindikunda*.

Juice of leaves—cooling, aper., given to children suffering from smallpox.

Root—febge.

Leaves—bruised and applied to contusions to relieve pain and diminish swelling.

Throughout India, up to 4,000 ft. on the Kumaon Himalayas.

R. repens Nees
Bo.–*Ghatipitpapada*; Gujarati–*Khatsalio*; H.–*Kharmor*; S.–*Parpatha*; Tam.–*Kodagasalai*.

Plant—dried and pulverized given in fevers and cough and considered vermifuge.

Fresh leaves—bruised and mixed with castor oil applied to the scalp in cases of tinea capitis.

Throughout the warmer parts of India.

RUTA (*Rutaceae*)

R. graveolens Linn.
S.–*Somalata*; H.–*Sadab*; B.–*Ermul*; Bo.–*Satap*; P.–*Sudab*; Kan.–*Sadabu*; Tam.–*Arvada*; Tel.–*Aruda*.

Plant—antisp., stim., acro-narcotic poison, emmen., irrit., abortif.

Leaves—used in rheum. pains, in treating hysteria, worms, colic and atonic amenor. and menor.

Herb and oil—stim., chiefly of the uterine and nervous system.

Glucd. rutin (*Arch. Pharm., Berl.*, 1904, 255); essen. oil (*Proc. chem. Soc., Lond.*, 1902, 192; *Ber. Schimmel u. Co., Lpz.*, 1920, 49; U.S.D., 1573); contains rutoside which produces in dog hypotension without bradycardia and reduction of the size of the kidneys (*Bull. Sci. pharm.*, 1936, 279; *Chem. Abstr.*, 1936, 5366); in guinea-pigs and rabbits large doses of oil or rue produce dyspnoea, diar., torpor, hematemesis and loss of weight (*C.R. Soc. Biol., Paris*, 1938, 1324; *Chem. Abstr.*, 1938, 5918); the glucd. rutin restores capillary fragility to normal thus preventing capillary haemor. (*Amer. J. med. Sci.*, 1946, 539; *Chem. Abstr.*, 1946, 4850).*

Cultivated in Indian gardens.

R. tuberculata Forsk.
Arab.–*Fidjel*.

Uses similar to *R. graveolens*.

Hills of Sind and Baluchistan.

SACCHAROMYCES (*Saccharomycetaceae*)

S. cerevisiae Meyen
H. & Dec.–*Sendhi*; M.–*Kallu*.

Poultice—applied to gangrenous ulcerations.

Cultivated.

SACCHARUM (*Gramineae*)

S. arundinaceum Retz.
P.–*Sarkanda*; B.–*Teng*; S. & Mal.–*Munja*; Tam.–*Munji*; Tel.–*Adavicheruku*.

Root—demulc., diur.

Throughout the plains and low hills of India. Frequently cultivated.

S. ciliare Anders.; see **S. munja** Roxb.

S. munja Roxb. syn. *S. ciliare* Anders.
S.–*Munja*; Tel.–*Gundra*; H.–*Sarkanda*; B. & Bo.–*Sar*; P.–*Sarkara*.

Stem—refrig., aphrodis., useful in burning sensations, blood troubles, erysipelas, thirst and urinary complaints.

Root—burnt near women after delivery, and burns and scalds, its smoke being considered beneficial.

N. India, in the Punjab and Upper Gangetic Plain.

S. officinarum Linn.
S., Kan. & Mal.–*Ikshu*; H., P. & B.–*Ganna*; Bo.–*Serdi*; Tam.–*Karumbu*; Tel.–*Cheraku*.

Stems—sweet, laxt., diur., cooling, aphrodis.

Root—demulc., cooling, diur.,

Calcium oxalate (*C.R. Acad. Sci., Paris*, 1849, 613).*

Cultivated in the hotter parts of India.

S. spontaneum Linn.
B.–*Kash*; H.–*Kans*; P.–*Kahi*; Tam.–*Nanal*; Tel.–*Kakicherakù*; Mal.–*Nannana*; S.–*Kasha*.

Plant—laxt., aphrodis., useful in burning sensations, strangury, phthisis, vesical calculi, diseases of blood, biliousness, haemorrhagic diathesis.

Throughout India in the warmer parts ascending to 6,000 ft. in the Himalayas.

SACCOLABIUM (*Orchidaceae*)

S. papillosum Lindl.; see **Acampe papillosa** Lindl.

S. wightianum Hook. f.; see **Acampe praemorsa** Blatter & McCann

SAGERAEA (*Annonaceae*)

S. laurifolia (Grah.) Blatter syn. *Bocagea dalzelli* Hook. f. & Thoms.

Bo.–*Andi*: Marathi–*Sageri*; Kan.–*Sagare*; Konkani–*Sageree*.

Leaves—bitter, astrin., and pungent, used for fomentation.

Glucd. (*Pacif. Rec.*, 1892, 304).

S. Konkan.

SAGITTARIA (*Alismaceae*)

S. sagittifolia Linn.

B.–*Chotokut, Muyamuya*.

Plant—used in China to induce flow of lochia, in retention of the placenta and in skin diseases.

Tubers contain starch, sugars, etc. (*J. biol. Chem.*, 1913, 221).

Throughout the plains of India.

SAGUERUS (*Palmae*)

S. rumphii Roxb.; see **Arenga pinnata** (Wurmb.) Merr.

SALACIA (*Celastraceae*)

S. oblonga Wall.

M.–*Ponkoranti*.

Root bark—used in gonor., rheumatism and skin diseases.

Western Peninsula.

S. reticulata Wight

S.–*Ekanayakam*; M.–*Koranti*; Sing.–*Himbuturvel*.

Root bark—used in gonor., rheumatism and skin diseases.

Western Peninsula.

SALICORNIA (*Chenopodiaceae*)

S. brachiata Roxb.

Bo.–*Machul*; Mal. & Tam.–*Umari*; Tel.–*Koyyalu*.

Ashes—used for mange and itch and considered emmen. and abortif.

Gujarat, Kathiawar, W. and E. Coast of the Madras State, Sundarbans, etc.

SALIX (*Salicaceae*)

S. acmophylla Boiss.

Bo.–*Budha*; H.–*Bada*; P.–*Bed*; Kumaon–*Gadhbhains*.

Decoct. of bark—used as a febge.

N.W. India and Baluchistan.

S. alba Linn.

P.–*Bis, Malchang*; Kash.–*Vivir*.

Bark—tonic, astrin., antiper.

Decoct.—given in febrile diseases of rheum. or gouty origin, in diar. and dysen.

Glucd. (*Amer. J. Pharm.*, 1891, 581); salicin (U.S.D., 1576).

Cultivated in N.W. Himalayas.

S. babylonica Linn.

H.–*Majnun*; P.–*Bedmaju*; Nep.–*Tissi*; Kash.–*Giur*; Tel.–*Attuppalai*.

Leaves and bark—tonic, astrin., used in intermittent and remittent fevers.

Bark—anthelm.

Leaves contain enzyme salicinase (Wehmer, I, 203).

Cultivated in the plains of India and the Himalayas up to 9,000 ft. and elsewhere in gardens.

S. caprea Linn.

Urdu–*Bedmishk*; H. & P.–*Bedmushk*.

Decoct. of leaves—given in fevers.

Distilled water from the flowers—cordial, stim., aphrodis., externally applied in headache and ophthalmia.

Ashes of the wood—useful in haemoptysis.

Stem and leaves—astrin.

Gum and juice—used to increase visual powers.

Fresh bark contains glucd. salicine, enzyme salicinase and two more glucosidases (Wehmer, I, 203).

Cultivated in Rohilkhand and N.W. India.

S. daphnoides Vill.

Kash.–*Yur*; P.–*Bedi*.

Glucd. salicin (*Pharm. Ztg, Berl.*, 1831, 305); fresh leaves yield 0·5% daphneflavonoloside; branches contain populoside (*J. Pharm. Chim., Paris*, 1936, 393; *Chem. Abstr.*, 1937, 4058).

Temperate Himalayas, from Kumaon westwards, from 2,500 ft. in the outer ranges to 15,000 ft. in the inner and in W. Tibet.

S. tetrasperma Roxb.

H.–*Baishi*; B.–*Panijama*; Bo.–*Bacha*; S.–*Varuna*; Tam.–*Attupalai*; Tel.–*Etipisinika*; Mal.–*Attupala*.

Bark—used as a febge.

Throughout tropical and subtropical India.

SALMALIA (*Bombacaceae*)

S. malabarica Schott & Endl. syn. *Bombax malabaricum* DC.

B.–*Roktosimul*; Bo.–*Semul*; H.–*Simul*; S.–*Salmili*; Mal.– *Mocha*; Tam.–*Purani*; Tel.–*Salmali*.

Root—stim., tonic, form the chief ingredient in the *musla-semul*, a medicine which is aphrodis.; given in impotence.

Root and bark—emetic.

Gum—aphrodis., demulc., haemostatic, astrin., tonic, alter., used in diar., dysen. and menor.

Flowers and fruits—used in snakebite.

Gum contains catechutannic acid, seeds contain 22·3% crude fat with 0·5% stearin (Wehmer, II, 766; *J.*

Soc. chem. Ind., Lond., 1911, 469; *Bull. imp. Inst., Lond.*, 1920, 335); roots of young plant contain proteins 1·2, fatty matter 0·9, phosphatides (cephaelin) 0·3, semul red 0·5, tannins 0·4, arabinose and galactose 8·2, pectous matter 6·0, starch 71·2%; mucilage appears to be a salicophosphoric ester of mannogalactan (*Indian For.*, 1935, 93; *Chem. Abstr.*, 1937, 4055).

Throughout the hotter parts of India.

SALSOLA (*Chenopodiaceae*)

S. foetida Del.

P.–*Motilane*; Bo.–*Lanan*; Tel.–*Ellakura*.

Plant—used as vermifuge.

Ashes—applied to itch.

Punjab Plain, Upper Gangetic Plain, Sind and Baluchistan.

S. kali Linn.

P.–*Sajji buti*; Arab.–*Elkali*.

Plant—used as a remedy for worms.

Oxalic acid (*Ann. pharm. franc.*, 1835, 86; *Mh. Chem.*, 1926, 611).

N.W. Punjab, N.W. Frontier Province, Kashmir, 12,000-14,000 ft., and Baluchistan.

SALVADORA (*Salvadoraceae*)

S. indica Wight; see **S. persica** Linn.

S. oleoides Dcne.

S.–*Pilu*; H.–*Bahapilu*; Bo.–*Kankhina*; P.–*Pil*; Tam.–*Kalawa*.

Root bark—vesic.

Leaves—used as purg. and as a cure for cough.

Fruit—aphrodis.

Oil from seeds—used as a stimulating application in painful rheum. affections and after child-birth.

Leaves and root contain alk., trimethylamine (Dymock, Warden & Hooper, II, 383); seeds contain fatty oil and ethereal oil (*J. Indian Inst. Sci.*, 1926, 117 A).

Punjab, Salt Range, Rajputana, Gujarat, Sind and Baluchistan.

S. persica Linn.

S.–*Brihatpilu*; H. & B.–*Chotapilu*; Bo.–*Pilvu*; P.–*Pilu*; Tam.–*Perungoli*; Tel.–*Gogu*.

Leaves—used as external application in rheumatism; their juice given in scurvy.

Shoots and leaves—pungent, used as antid. to poisons of all sorts.

Fruit—carmin., diur., deobstruent.

Stem bark—used in decoct. in low fever and as a stim. and tonic in amenor.

Root bark—acrid.

Alk. trimethylamine (*J. Indian Inst. Sci.*, 1926, 117 A).

Drier parts of India such as occurring in Rajputana, Bihar, Konkan, Circars, Deccan, Carnatic, and in Baluchistan and Sind.

SALVIA (*Labiatae*)

S. aegyptiaca Linn.

P.–*Tukhm-malanga*.

Seeds—used in diar., gonor. and haemorrhoids.

Plant—used as a cure for eye diseases.

Punjab Plains, Sind and Baluchistan.

S. cabulica Benth.

Baluchi–*Mateto*.

Plant—considered a cure for fever, also for colds and lung diseases.

Baluchistan.

S. lanata Roxb.

A good subst. for *S. moorcroftiana*.

W. Himalayas, from Murree to Kumaon, 5,000-8,000 ft.

S. macrosiphon Boiss.

Plant—used as a poultice for gangrene in Waziristan.

Punjab frontier to Baluchistan.

S. moorcroftiana Wall.

P.–*Kallijarri*.

Roots—given in cold and cough.

Seeds—emetic; given for haemorrhoids; given in dysen. and colic and applied to boils.

Leaves—used as a medicine for guinea-worm and itch; in form of poultice applied to wounds.

Essen. oil, mucil. (*Rep. Sch. trop. Med. Calcutta*, 1935).

W. Himalayas, from Kashmir to Kumaon, 6,000-9,000 ft.

S. officinalis Linn.

H.–*Salbia sefakuss*.

Plant—tonic, astrin., arom.; its infusion used as a lotion for ulcers, and to heal raw abrasions of the skin and to dry up the breast milk for weaning.

Leaves—make excellent gargle for relaxed throat and tonsils and for ulceration of mouth and throat.

Essen. oil (*Ber. Schimmel u. Co., Lpz.*, 1920, 142; *Parfum. mod.*, 1923, 244; *J. chem. Soc.*, 1877, 548; 1880, 678; U.S.D., 999); leaves gave essen. oil, saponin, bitter principle, organic acids (*Apothekerztg, Berl.*, 1949, 82; *Chem. Abstr.*, 1950, 7028); extract of plant reduces the temperature of normal guinea-pigs as well as of guinea-pigs with hyperthermia (*C.R. Soc. Biol., Paris*, 1941, 1458).

Introduced into some Indian gardens.

S. plebeia R. Br.

P.–*Sathi*; B.–*Kokaburadi*; Bo.–*Kammarkas*.

Seeds—used in diar., gonor., menor. and haemorrhoids.

(*Indian For. Rec.*, 1923, 10, 11, 13).

Throughout India.

S. pumila Benth.; see **S. aegyptiaca** Linn.

S. spinosa Linn.

Pushtu—*Ganacha*.

Seeds—powdered and applied to teeth to cure toothache.

Fresh whole plant yields 0·2% essen. oil containing *l*-hexanol 13·5, *l*-linalool 55% (containing 27% acetate and iso-valerate), free acetic and isovaleric acids, sesquiterpenes and aldehyde (*Acta Univ. Asiae med.*, Ser. VI, 1937, 5; *Chem. Abstr.*, 1939, 4369).

Baluchistan.

SAMADERA (*Simarubaceae*)

S. indica Gaertn.

Marathi–*Lokhandi*; Mal.–*Notta*; Tam.–*Nibam*; Burm.–*Kathai*.

Bark—used in fever.

Leaves—bruised and externally applied in erysipelas; their infusion used as an insecticide.

Infusion of wood—taken as a tonic.

Oil from kernels—used as an application in rheumatism.

Glucd. samaderin, bitter substance in all parts (*Arch. Pharm., Berl.*, 1901, 96; *Chem. Zbl.*, 1900, II, 1124; *J. prakt. Chem.*, 1867, 413).

Bombay, Konkan, W. coast of Madras State, in evergreen forests in Malabar and Travancore.

S. indica Gaertn. var. **lucida** Blatter

Uses same as of *S. indica*.

Tenasserim, perhaps also Andamans.

S. lucida Wall.; see **S. indica** Gaertn. var. **lucida** Blatter

SAMBUCUS (*Caprifoliaceae*)

S. ebulus Linn.

P.–*Mushkiara*, *Ganhula*.

Roots—purg., used in dropsy.

Berries—used in dropsy, purg.

Leaves—expect., diur., diaphor., purg., useful in dropsy.

Leaves contain cyanogenetic glucd., essen. oil (*C.R. Acad. Sci., Paris*, 1905, 16, 236; *Arch. Pharm., Berl.*, 1913, 56).*

Dry inner valleys of the Himalayas such as Kagan valley, Kashmir, Pangi and Chamba from 6,000 to 11,000 ft.

S. javanica Reinw. ex Blume

Plant—used as depurative, diur. and purg. in Indo-China.

Assam and E. Bengal Plain, Sikkim up to 6,000 ft.

S. nigra Linn.

Arab.–*Uti-khaman*.

Flowers—diaphor., diur., used in febrile complaints, as alter. in syphilis and rheumatism.

Berries, bark and root—laxt.

Cyanogenetic glucd. sambunigrin in bark and leaves (Wehmer, II, 1184; *C.R. Acad. Sci., Paris*, 1905, 16; *J. Pharm. Chim., Paris*, 1905, 154, 210, 219, 385); oxalic acid in young leaves (*C.R. Acad. Sci., Paris*, 1905, 59); essen. oil, alk. sambucin (*J. Pharm. Chim., Paris*, 1901, 17; *Dtsch. ParfumZtg*, 1934, 115; *Chem. Zbl.*, 1934, II, 1213); berries yield chrysanthemin (*Proc. R. Irish Acad.*, 1931, 56; *Chem. Zbl.*, 1931, II, 2341); bark, leaves and flower heads contain choline and an alk. (*C.R. Soc. Biol., Paris*, 1936, 155; *Chem. Abstr.*, 1936, 5723); flowers contain eldrin identical with rutin (*Amer. J. Pharm.*, 1921, 40); flowers yield small amount of essen. oil (U.S.D., 1577).*

Indigenous to Europe and Asia Minor; cultivated to a small extent in Indian gardens.

SANDORICUM (*Meliaceae*)

S. indicum Cav.; see **S. koetjape** Merrill

S. koetjape Merrill syn. *S. indicum* Cav.

Burm.–*Thitto*; Tam.–*Sevai*; Tel.–*Sevamanu*.

Root—arom., carmin., stomch., antisp., astrin., used in diar. and dysen.

Toxic bitter substance, alk. (*Meded. PlTuin, Batavia*, 1899, 80, 121).*

Tropical forests of Pegu and Tenasserim. Largely cultivated in the Western Peninsula, Ceylon, Malay Peninsula and Burma.

SANSEVIERIA (*Haemodoraceae*)

S. roxburghiana Schult.

B.–*Murba*; Bo.–*Morwa*; H. & Tam.–*Marul*; S.–*Marura*; Kan.–*Maruga*; Tel.–*Chaga*.

Root—prescribed in the form of an electuary in consumptive complaints and coughs of long standing.

Juice of tender shoots—administered to children to clear their throats of viscid phlegm.

Coromandel coast.

S. zeylanica Willd.

S.–*Muruva*; H.–*Murva*; B.–*Murba*; Bo.–*Morwa*; M.–*Marul-kalung*.

Root—purg., tonic, expect., febge.

Alk. sanservierine (Dymock, Warden & Hooper, III, 495; *Indian J. med. Res.*, 1934, 266); juice from fresh leaves contain aconitic acid; dried rhizomes and roots contain alk. and resin (*Amer. J. Pharm.*, 1947, 232; *Chem. Abstr.*, 1947, 6927).

Ceylon, tropical and S. Africa. E. coast of India from Bengal to Madras. In India it exists mainly under cultivation.

SANTALOIDES (*Connaraceae*)

S. minus Schellenb. syn. *Rourea santaloides* W. & A.

B.–*Vitaraka*; Bo.–*Vardara*; H.–*Vidhara*; S.–*Vridha*; Kan.–*Eradumushti*; Tel.–*Chandrapudi*.

Root—used as a bitter tonic in rheumatism, diabetes, scurvy, and pulmonary complaints; as an alter. and tonic in syphilis; externally applied to ulcers and other skin affections.

Konkan, S. Mahrata Country, N. Kanara to Travancore.

SANTALUM (*Santalaceae*)

S. album Linn.

S. & Kan.–*Chandana*; H., B. & Bo.–*Chandan, Safed chandan*; P.–*Chandan*; Mal.–*Chandanam*; Tam.–*Ingam*; Tel.–*Chandanamu*.

Wood—ground up with water into a paste applied to the temples in headache, fevers and local inflam., and to skin diseases to allay heat and pruritus; diaphor.

Oil from heartwood—used in the symptomatic treatment of dysuria, in gonorrheal urethritis and cystitis.

Heartwood yields essen. oil; yield varies from 1·5 to 6% (Trease, 217; *J. Indian Inst. Sci.*, 1928, 97A; *Indian For. Bull.*, No. 6, 1911; *J. chem. Soc.*, 1918, 125; *Ber. Schimmel u. Co., Lpz.*, 1915, April, 42); essen. oil 0·8-8·0%; the oil contains santalol 89-96% (*J. Amer. pharm. Ass.*, 1932, 30; *Chem. Zbl.*, 1932, I, 3508); yield of essen. oil from the plant sometimes falls below 1% due to the inclusion of sapwood (*J. Amer. pharm. Ass.*, 1938, 580; *Chem. Abstr.*, 1938, 7673).

Western Peninsula. Cultivated elsewhere.

SAPINDUS (*Sapindaceae*)

S. mukorossi Gaertn.

S.–*Phenila*; Assam–*Haithaguti*; H., B. & Bo.–*Ritha*.

Fruits—expect., used in salivation, chlorosis and epilepsy; used as fish poison.

Saponin (*Arch. Pharm., Berl.*, 1901, 363); fruit shell contains saponin, mucorosin (*Hoppe-Seyl. Z.*, 1931, 37, 56; 1932, 9); saponin is in the pericarp; fresh nuts yield 13·8% and old nuts 7·2% saponin (*Industr. Engng. Chem.*, 1939, 712; *Chem. Abstr.*, 1939, 5593; *J. Chin. chem. Soc.*, 1942, 151; *Chem. Abstr.*, 1943, 6820; *J. pharm. Soc. China*, 1943, 17; *Chem. Abstr.*, 1945, 3118).

Cultivated throughout N.W. India, Bengal and Assam; wild on the Himalayas up to 4,000 ft.

S. trifoliatus Linn.

S.–*Phenila*; H., B. & Bo.–*Ritha*; Mal.–*Ponnan-kotta*; Tam.–*Ponnangottai*; Tel.–*Phenilamu*.

Fruit—tonic, alexipharmac, given internally as expect., emetic, purg. and nauseant; as an errhine used in epilepsy, asthma, hysteria and hemicrania; externally it is detergent; used as fish poison.

Saponin (*J. Soc. chem. Ind., Lond.*, 1910, 1431).

South and west India round the villages. Cultivated in Bengal. Occasionally planted elsewhere.

SAPIUM (*Euphorbiaceae*)

S. indicum Willd.

B.–*Hurua*; Bo.–*Hurna*; Mal.–*Karmmatti*.

Seeds—used as fish poison.

Juice of tree—poisonous.

Sundarbans, W. coast along backwaters in Malabar and Travancore.

S. insigne Trimen

H.–*Khinna*; Bo. & P.–*Dudla*; Garhwal–*Khindra*; Tel.–*Garbhasula*.

Milky juice of the tree—acrid, vesic.

Sub-Himalayan tract, from the Beas eastwards to Assam, Chittagong, Orissa and Western Peninsula.

S. sebiferum Roxb.

S.–*Toyapippali*; H.–*Vilayati shisham*; B.–*Momchina*; Bo.–*Pipal-yank*.

Juice of the tree—acrid, vesic. (*Arch. Pharm., Berl.*, 1925, 186).

Cultivated in India.

SAPONARIA (*Caryophyllaceae*)

S. vaccaria Linn.

H.–*Musna*; B.–*Sabuni*.

Sap of plant—considered febge. and tonic in long-continued fevers of a low type.

Plant—used in the cure for itch.

Saponin (Dymock, Warden & Hooper, I, 157; Wehmer, I, 304).

A weed of cultivation throughout India.

SARACA (*Leguminosae*)

S. indica Linn.

S.–*Ashoka*; H. & Bo.–*Ashok*; P. & B.–*Asok*; Mal.–*Asoka*; Tam.–*Asogam*; Tel.–*Asokamu*.

Bark—astrin., used in uterine affections and in menor., in scorpion-sting.

Bark contains tannin and catechol (*Indian med. Rec.*, 1939, 112; *Chem. Abstr.*, 1939, 8917).

Central and E. Himalayas, E. Bengal and Western Peninsula.

SARCOCEPHALUS (*Rubiaceae*)

S. cordatus Miq.; see **Nauclea orientalis** Linn.

S. horsfieldii Miq.; see **Nauclea orientalis** Linn.

SARCOSTEMMA (*Asclepiadaceae*)

S. acidum (Roxb.) Voigt
S. & Bo.–*Soma*; H. & B.–*Somlata*; Tel.–*Kondapala*; Mal. & Tam.–*Somam*.

Dried stem—emetic.

Plant—bitter, cooling, alter.

Arid rocks in Konkan, Deccan, N. Circars, Carnatic and Horsleykonda up to 4,500 ft. and Bengal. Reported from Ranchi (Horhap forest), Singhbhum and Puri.

S. brevistigma W. & A.; see **S. acidum** (Roxb.) Voigt

S. brunonianum W. & A.
Uses same as of *S. acidum*.
South India.

S. intermedium Dcne.
Kan.–*Soma*; Mal.–*Jivati*; Tam.–*Kodikkalli*; Tel.–*Somalata*.
Uses same as of *S. acidum*.
Western Peninsula.

S. stocksii Hook. f.
Use same as of *S. acidum*.
S. Mahrata Country and Sind.

SARCOSTIGMA (*Icacinaceae*)

S. kleinii W. & A.
Tam.–*Puvanna*, *Puvennai*.

Oil—used in the treatment of rheumatism.

W. Ghats from N. Kanara southwards to the Wynaad, Anamalai and Travancore hills at low elevations.

SATUREJA (*Labiatae*)

S. hortensis Linn. syn. *Calamintha hortensis* Linn.
Herb—arom., carmin.
Leaves and flowers—stim.
Kashmir.

SAURAUJA (*Ternstroemiaceae*)

S. napaulensis DC.
H.–*Gogina*; Kumaon–*Gogin*.

Bark—used as poultice to help extraction of splinter imbedded in the flesh in Tongking.

Temperate Himalayas, from Bhutan and Sikkim at 5,000-7,000 ft. to Garhwal at 2,400-5,000 ft.; Khasia Hills at 5,000 ft.; Mishmi Hills.

SAUROMATUM (*Araceae*)

S. guttatum (Wall.) Schott
Bo.–*Loth*; M.P.–*Bhasamkand*.

Tubers—used as a stimulating poultice.

Punjab Plain, Upper Gangetic Plain, W. Himalayas, Dehra Dun, Bundelkhand, Chota Nagpur, Tirhut, Konkan and the Deccan.

S. pedatum Schott; see **S. guttatum** (Wall.) Schott

SAUROPUS (*Euphorbiaceae*)

S. quadrangularis Muell.-Arg.
H.–*Surasaruni*; S.–*Aruni*; Tel.–*Tellavusirika*.

Dried leaves—smoked in tonsillitis.

Bihar, Chota Nagpur and Western Peninsula.

SAUSSUREA (*Compositae*)

S. affinis Spreng.
Assam—*Gangamula*.

Juice of root—given with other medicines for diseases of women.

Bengal, from Sylhet to the foot of the Nepal hills.

S. candicans C. B. Clarke
P.–*Batula*, *Kaliziri*.

Seeds—carmin., used for horses; considered as a cure for horse-bite.

From the Salt Range, Hazara and Kashmir to Bhutan, 2,000-7,000 ft., and Baluchistan.

S. hypoleuca Spreng. syn. *Aplotaxis auriculata* DC.

Leaves—considered purg. and antisyp. in Indo-China.

Temperate Himalayas from Kashmir to Sikkim, 7,000-13,000 ft.

S. lappa C. B. Clarke
S.–*Kushtha*; H., P. & Kash.–*Kuth*; B.–*Pachak*; Bo.–*Ouplate*; Tam.–*Goshtam*; Tel.–*Kustam*; Mal.–*Sepuddy*.

Root—tonic, stomch., carmin., stim., used as spasmodic in asthma, cough and cholera and as alter. in chr. skin diseases and rheumatism.

Roots contain essen. oil, alk. saussurine and a bitter resin (*Chem. & Drugg.*, 1924, 413; *Ber. Schimmel u. Co., Lpz.*, 1892, 41; 1896, April, 42; *Ber. dtsch. chem. Ges.*, 1914, 2433, 2687; *J. Indian chem. Soc.*, 1929, 519); the drug has a remarkable effect in controlling bronchial asthma, especially those of the vago-tonic type (*Indian J. med. Res.*, 1929, 351; *Amer. Perfum.*, 1933, 509; *Chem. Zbl.*, 1934, I, 2049); physical constants of the essen. oil from root (*Parfums de Fr.*, 1936, 271; *Chem. Abstr.*, 1937, 1553); roots gave essen. oil containing bicyclic lactone (*Bull. Soc. chim., Paris*, 1948, 357; *Chem. Abstr.*, 1949, 362); roots yield 0·6-2·8% essen. oil; the resinoid on distillation with superheated steam under reduced pressure yields 3·5-4·8%; essen. oil contains 1% terpenes, 20% aplotaxene, 60% sesquiterpenes (*Mfg. Chem.*, 1949, 318; *Chem. Abstr.*, 1950, 581); kushtin isolated from the roots (*J. sci. industr. Res.*, 1950, 1B; *Chem. Abstr.*, 1950, 5888).

Kashmir, 8,000-12,000 ft.

S. obvallata Wall.

P.–*Kanwal, Birmkanwal.*

Root—applied to bruises and cuts.

W. Himalayas, from Kashmir to Sikkim, 10,000-15,000 ft.

SAXIFRAGA (*Saxifragaceae*)

S. ligulata Wall.; see **Bergenia ligulata** (Wall.) Engl.

SCAEVOLA (*Goodeniaceae*)

S. frutescens Krause syn. *S. koenigii* Vahl

Bo.–*Bhadrak*; Tam.–*Vellamuttagam.*

Juice of berries—instilled into the eyes to clear off opacities and take away dimness of vision.

Bitter substance and glucd. (*Meded. PlTuin, Batavia*, 1894, 33; 1899, 133; *Pharm. Weekbl.*, 1896, No. 48).

Seashores of India.

S. koenigii Vahl; see **S. frutescens** Krause

SCAPHIUM (*Sterculiaceae*)

S. affine Ridley

Fruit—demulc.

Malay Peninsula.

S. wallichii Schott & Endl.

Fruit—used in China as a remedy for dysen. and piles.

Chittagong, Tenasserim and Martaban.

SCHIMA (*Ternstroemiaceae*)

S. wallichii Chois.

H. & Assam–*Chilauni*; Khasia–*Dingan.*

Bark—irritates skin, anthelm., rubft.

Saponin (Wehmer, II, 777; *Bull. Inst. bot. Buitenz.*, 1904, 3).

Assam, Khasia Hills, Manipur, Chittagong, Sikkim up to 5,000 ft., Bhutan and Nepal.

SCHLEICHERA (*Sapindaceae*)

S. oleosa (Lour.) Merr. syn. *S. trijuga* Willd.

H.–*Kosum*; Bo.–*Kosam*; Kumaon–*Kusm*; Mal.–*Puvam*; Tam.–*Kolama*; Tel.–*Posuku.*

Bark—astrin., rubbed up with oil used as a cure for itch.

Powdered seeds—applied to ulcers of animals and for removing maggots.

Oil of the seeds—used for the cure of itch and acne; efficient and stimulating agent for the scalp, both cleansing it and promoting growth of hair.

Seeds contain cyanogenetic glucd. (*J. Soc. chem. Ind., Lond.*, 1920, 88; *Analyst*, 1915, 3; *Apothekerztg, Berl.*, 1920, 17; *Pharm. Zentralh.*, 1891, 396; *Amer. chem. J.*, 1894, 467).*

Dry forests of the sub-Himalayan tract from the Sutlej to Nepal, Chota Nagpur, central and southern India; not in Assam.

S. trijuga Willd.; see **S. oleosa** (Lour.) Merr.

SCHREBERA (*Oleaceae*)

S. swietenioides Roxb.

B.–*Ghantaparul*; Bo.–*Mokagantha*; H.–*Moka*; S.–*Ghantapatali*; Tam.–*Magalingum*; Tel.–*Magalinga.*

Root—used in leprosy.

Sub-Himalayan tract from Kumaon eastwards, Madhya Bharat, Rajputana.

SCHWEINFURTHIA (*Scrophulariaceae*)

S. sphaerocarpa A. Br.

H.–*Nepalnimb, Sanipat*; Bo.–*Sonpat.*

Fruit and powdered leaves together with portions of the stem—prescribed in typhoid conditions.

Powdered plant—snuffed up for bleeding at the nose.

Drug contains alk. (Dymock, Warden & Hooper, III, 6).

Rajputana Desert, Sind and Baluchistan.

SCILLA (*Liliaceae*)

S. coromandeliana Roxb.; see **Urginea coromandeliana** Hook. f.

S. indica Baker

B.–*Suphadiekhus*; Bo. & H.–*Bhuikanda*; Tam.–*Sirunarivengayam.*

Bulb—expect., cardiac tonic, diur.

Assays carried out show that it is no way inferior to *Urginea scilla* and *U. maritima* of the B.P. and U.S.P. (*Indian med. Gaz.*, 1931, December).

Bundelkhand, Gwalior, Bihar, Chota Nagpur, Madhya Bharat, Konkan, Mahabaleshwar, S. Mahrata Country, and all districts of the Madras State except W. coast up to 4,000 ft.

SCINDAPSUS (*Araceae*)

S. officinalis Schott

H. & B.–*Gajapipal*; Bo. & Marathi–*Thorapimpli*; S.–*Gajapippali*; Mal.–*Attittippali*; Tam.–*Anaittippili*; Tel.–*Enugatippali*.

Fruit—aphrodis., stim., diaphor., anthelm., applied externally for rheumatism.

Alk. (Dymock, Warden & Hooper, III, 544).*

Tropical Himalayas, from Sikkim eastwards, Bengal, Chittagong and the Andaman Islands.

SCIRPUS (*Cyperaceae*)

S. articulatus Linn.

S. & H.–*Chichora*.

Plant—purg.

All over India ascending to 3,000 ft. in the Himalayas.

S. corymbosus Heyne

Plant—in S. Africa suspected to be poisonous to cattle.

W. India, Mt. Abu, Goonah, Jubbulpore, Hyderabad and Bangalore.

S. grossus Linn. f.

Vern. names same as of *S. kysoor*.

Uses same as of *S. kysoor*.

Amylase from the fruit (*J. Indian chem. Soc.*, 1941, 407).

More or less throughout India.

S. kysoor Roxb.

S.–*Kaseruka*; H. & B.–*Kasuru*; Bo.–*Kachera*; Tel.–*Gundatungagaddi*; P.–*Kaseru*.

Tubers—given in diar. and vomiting.

More or less throughout India.

S. lacustris Linn.

Rootstock—astrin., diur.

Kashmir and Ladakh reaching up to 4,500-5,000 ft.

S. maritimus Linn.

P.–*Dila*

Root—used in China as astrin. and diur.

Kashmir, Kashgar, 10,000 ft., and Moradabad to Mysore and Malabar.

SCOPARIA (*Scrophulariaceae*)

S. dulcis Linn.

Plant—in infusion used in ague; in Guiana used as emetic.

Alk. (*Meded. PlTuin, Batavia*, 1897, 83; 1899, 135); an antidiabetic principle amellin (*Ann. Biochem.*, 1943, 55; *Chem. Abstr.*, 1945, 3361; *Sci. & Cult.*, 1941-42, 572).

Widely spread in India.

SCOPOLIA (*Solanaceae*)

S. anomala (Link & Otto) Airy-Shaw syn. *S. lurida* Dunal

Tincture of leaves—made in the proportion of one ounce to eight ounces of alcohol, administered produces dilation of the pupil.

Hyoscyamine, hyoscine (*Arch. Pharm., Berl.*, 1890, 145; 1891, 492); roots contain 2 to 2·8% alks. of which one-fifth is hyoscine (*Farmatsiya*, 1939, 21; *Chem. Abstr.*, 1942, 3910); roots also contain hyoscyamine and cuscotygrine (*J. gen. Chem., Moscow*, 1946, 2121).*

Sikkim and Nepal, up to 5,000 ft.

S. lurida Dunal; see **S. anomala** (Link & Otto) Airy-Shaw

S. praealta Dunal; see **Physochlaina praealta** Miers

SCUTELLARIA (*Labiatae*)

S. galericulata Linn.

Decoct. of plant—used in epilepsy, intermittent fever and ague.

Glucd. scutellarin (*Chem. Zbl.*, 1923, III, 244).

Western temperate Himalayas, Kashmir, 5,000-8,000 ft.

SEBASTIANIA (*Euphorbiaceae*)

S. chamaelea Muell.-Arg.

Konkan–*Bhuierendi*.

Juice of the plant—in wine used as astrin.

Plant—in form of a *ghrita* considered tonic and is applied to the head in vertigo.

Bihar and Deccan Peninsula.

SECAMONE (*Asclepiadaceae*)

S. emetica R. Br.

B.–*Shadaburi*; Tam.–*Sagadam*; Kan.–*Siranigehambu*.

Root—emetic.

Deccan and Carnatic, hilly regions from Nellore to Coimbatore, south to Tinnevelly and up to 4,000 ft. on Horsleykonda.

SECURINEGA (*Euphorbiaceae*)

S. leucopyrus Muell.-Arg.; see **Flueggea leucopyrus** (Koen.) Willd.

SEDUM (*Crassulaceae*)

S. asiaticum Spreng.; see **S. crassipes** Wall.

S. crassipes Wall.

Plant—emol., resolv. and vulnerary.

Alpine Himalayas, from Kashmir to Sikkim, 11,000-16,000 ft.

S. multicaule Wall.

Plant—used as emol. and vulnerary in China.

Temperate Himalayas, 4,000-7,000 ft.

SEMECARPUS (*Anacardiaceae*)

S. anacardium Linn. f.

S.–*Bhallika*; B.–*Bhela*; Bo.–*Biba*; H. & P.–*Bhilawa*; Mal.–*Temprakku*; Tam.–*Serangottai*; Tel.–*Bhallatamu*.

Nut—bruised and applied to os uteri to procure abortion; given as a vermifuge.

Oil from the nuts—vesic., used externally in rheumatism and leprous nodules.

Gum from bark—used in scrofulous, venereal and leprous affections and nervous debility.

Ashes of plant—in combination with other drugs used in snake-bite and scorpion-sting.

Anacardic acid, cardol, catechol, anacardol and fixed oil (*Liebigs Ann.*, 1847, 259); semecarpol, bhilawanol (*J. Indian Inst. Sci.*, 1925, 129A; *J. Indian chem. Soc.*, 1931, 517).

Sub-Himalayan tract from the Beas eastwards, ascending in the outer hills up to 3,500 ft., Assam, Khasia Hills, Chittagong, Madhya Bharat, Gujarat, Konkan, S. Mahrata Country, Kanara and deciduous forests of all districts of the Madras State.

S. travancoricus Bedd.

Mal.–*Avukaram*; Tam.–*Kattu-shenkottai*.

Properties similar to *S. anacardium*.

Evergreen forests of Tinnevelly and Travancore up to 4,000 ft.

SENECIO (*Compositae*)

S. densiflorus Wall.

P.–*Chitawala*.

Leaves—applied to boils as emol. and maturant.

Central and Eastern Himalayas from Nepal to Bhutan, 5,000-7,000 ft. and Khasia Hills, 4,000-6,000 ft.

S. jacobaea D. Don

Plant—poisonous to livestock.

Root contains alk. as in *S. vulgaris* (Wehmer, II, 1252; *Pharm. J.*, 1895, Nr. 1331, 535); alk. jacobine (*Canad. J. Res.*, 1931, 651; *Chem. Zbl.*, 1932, I, 1540); contains 0·06% total alks. consisting of jacobine, jacodine and jaconine (*J. chem. Soc.*, 1937, 584; *Chem. Abstr.*, 1937, 4454).

Temperate Himalayas from Kashmir to Sikkim, 8,000-13,000 ft. and Khasia Hills, 4,000-5,000 ft.

S. jacquemontianus Benth.

Kash.–*Hatermul*, *Poshkar*.

Root—used in Kashmir as nervine tonic and as adulterant for *kuth* root.

Apparently endemic in Kashmir, 8,000-13,000 ft.

S. laciniatus Wall.; see **S. jacobaea** D. Don

S. quinquelobus Hook. f. & Thoms.

P.–*Morta*.

Seeds—given in colic.

Temperate Himalayas, from Garhwal to Bhutan, 10,000-12,000 ft.

S. tenuifolius Burm.

P.–*Nimbar*, *Sanggye*.

Leaves—used as emol. and vulnerary in Kashmir.

S. Mahrata Country, Deccan, Carnatic.

S. vulgaris Linn.

Plant—poisonous to livestock; induces hepatic cirrhosis when administered to animals.

Alks. senecionin, senecin and a base (Wehmer, II, 1252; *C.R. Acad. Sci., Paris*, 1895, 1120; *Bull. imp. Inst., Lond.*, 1911, 346; *Proc. roy. Soc.*, 1911, 188); yield of alk. from samples collected in April, June and September is 0·015, 0·06 and 0·015% respectively (*J. chem. Soc.*, 1936, 743; *Chem. Abstr.*, 1936, 5995); yields 0·0265% alk. senecionine (*Bull. Soc. chim. Fr.* 1937, 1285; *Chem. Abstr.*, 1937, 7436).

Nilgiri Hills, as an escape, and Moradabad; cultivated in gardens.

SERRATULA (*Compositae*)

S. anthelmintica Roxb.; see **Centratherum anthelminticum** (Willd.) Kuntze

SESAMUM (*Pedaliaceae*)

S. indicum Linn. syn. *S. orientale* Linn.

S.–*Tila*; H., B. & Bo.–*Til*; Tam.–*Yelluchedi*; Tel.–*Nuvvulu*; Mal.–*Ellu*.

Seeds—emol., tonic, diur., lactag., useful in piles; in form of a decoct. used as emmen.; as a poultice applied to ulcers.

Seeds and oil—used as demulc. in dysen. and urinary complaints in combination with other medicines.

Leaves—in form of an infusion used in affections requiring demulcents in the southern United States.

Seeds yield a fixed oil, leaves contain gummy matter (U.S.D., 1584).

Cultivated all over India, Baluchistan and Waziristan.

S. orientale Linn.; see **S. indicum** Linn.

SESBANIA (*Leguminosae*)

S. aculeata Pers.; see **S. bispinosa** (Jacq.) Fawcett & Rendle

S. bispinosa (Jacq.) Fawcett & Rendle syn. *S. aculeata* Pers.

S., H. & B.–*Jayanti*; Bo.–*Ranshewra*; P.–*Jaintar*; Mal.–*Kitamu*; Tam.–*Mudchembai*; Tel.–*Ettajenga*.

Seeds—mixed with flour applied to ringworm and skin diseases.

Plant—considered cure for wounds.

Analysis of the plant (*Bull. imp. Inst., Lond.*, 1919, 184; Wehmer, I, 574).

Plains from the Western Himalayas to Ceylon.

S. aegyptiaca Poir.; see **S. sesban** (Linn.) Merr.

S. grandiflora (Linn.) Pers.

S.–*Agasti*; H. & Bo.–*Basna*; B.–*Bak*; Tam.–*Agatti*; Tel.–*Agise*; Mal.–*Akatti*.

Bark—astrin., tonic, in infusion given in small-pox.

Juice of leaves or flowers—used as a remedy for nasal catarrh and headache.

Ash analysis and composition (*Chem. Zbl.*, 1909, II, 649).

Plains of Western Peninsula.

S. sesban (Linn.) Merr. syn. *S. aegyptiaca* Poir.

H., S. & B.–*Jayanti*; Bo.–*Jait*; Mal.–*Shempa*; Tam.–*Sembai*; Tel.–*Jalugu*.

Bark—astrin.

Seeds—used in diar., excessive menstrual flow; mixed with flour applied for itching of the skin.

Juice of leaves—given as an anthelm.

Plains from the Himalayas to Ceylon, ascending to 4,000 ft. in north-west.

SESELI (*Umbelliferae*)

S. indicum W. & A.

S.–*Vanayamani*; B.–*Banjowan*; Bo.–*Kirminji-ajwan*.

Seeds—stim., carmin., stomch., anthelm.; used as a medicine for cattle.

Fruits contain 1·3% of a neutral unsaturated lactone and 0·6% of a compound probably a furocoumarin (*Sci. & Cult.*, 1936, 326; *Chem. Zbl.*, 1937, 238; *Chem. Abstr.*, 1938, 3361).

Sub-Himalayan tracts from Dehra Dun to Gorakhpur, Bundelkhand, Assam, Central Bengal and Coromandel Coast.

SETARIA (*Gramineae*)

S. italica Beauv. syn. *Panicum italicum* Linn.

B., Bo., P. & H.–*Kangni*; S.–*Kangu*; Kash.–*Pingni*; Mal.–*Tauna*; Tel.–*Koralu*; Tam.–*Tenai*.

Grains—diur., astrin., used externally in rheumatism and as a domestic remedy for alleviating the pains of parturition.

Toxic glucd., oily alk. (*Amer. chem. J.*, 1899, 861).

Cultivated throughout India and up to 6,000 ft. in the Himalayas.

S. plicata T. Cooke

Plant—used in La Reunion as emol. and diur.

Throughout the moister hilly parts of India, from Kumaon in the Himalayas eastwards, ascending to 5,000 ft. in Sikkim, and the Nilgiris up to 6,000 ft.

S. viridis Beauv.

Plant—crushed and mixed with water, used as an external application for bruises.

Temperate Himalayas and W. Tibet up to 11,000 ft., rare in the plains of India, reported from the Nilgiri Hills.

SHOREA (*Dipterocarpaceae*)

S. robusta Gaertn. f.

S.–Sala; H., P., B. & Bo.–*Sal*; Tam.–*Kungiliyam*; Tel.–*Sarjakamu*; Mal.–*Mulappumarutu*.

Resin—astrin., detergent, used in dysen. and for fumigations and plasters; given for weak digestion, gonor. and as aphrodis.

Resin contains essen. oil 62% (*Indian Soap J.*, 1946, 77; *Chem. Abstr.*, 1948, 3536).

Kangra district of the Punjab, from the Kalesar forest in the Ambala district along the sub-Himalayan tract to the Darrang district of Assam, sometimes in the outer Himalayan valleys up to 5,000 ft.; Garo Hills, Kamrup, Khasia Hills, Jaintia Hills, from the Santal Parganas through Chota Nagpur and Orissa to Ganjam, Jeypore, Madhya Pradesh and Vizagapatam.

S. tumbuggaia Roxb.

H. & B.–*Kaladamar*; Tam.–*Karuppudamar*; Tel.–*Nalladammara*; Mal.–*Tampakam*.

Resin—used as an external stim.

Forests of the Cuddapah, N. Arcot and Chingleput Hills up to 3,000 ft.

SIDA (*Malvaceae*)

S. acuta Burm.

S.–*Bala*; H.–*Bariara*; B.–*Bon-methi*; Bo.–*Janglimethi*; Tam.–*Vattatiruppi*; Tel.–*Visaboddi*; Mal.–*Malatanni*; M.–*Palambasi*.

Root—astrin., cooling, tonic, useful in nervous and urinary diseases and in disorders of the blood and bile; bitter, used as a febge., stomch., in chr. bowel complaints and as aphrodis.

Leaves—made warm and moistened with gingili oil, employed to hasten suppuration.

Throughout the hotter parts of India.

S. carpinifolia Linn. f.; see **S. acuta** Burm.

S. cordifolia Linn.

H.–*Kungyi*; B. & S.–*Brela*; Bo.–*Chikana*; P.–*Kharent*; Mal.–*Katturam*; Tam.–*Nilatutti*; Tel.–*Chirubenda*.

Decoct. of root—with ginger used as febge.

Root bark—with sesamum oil and milk effective in curing cases of facial paralysis and sciatica; as powder given with milk and sugar for the relief of frequent micturition and leucor.

Juice of plant—with water given for spermatorrhoea.

Juice of root—used for healing wounds.

Seeds—aphrodis., administered in gonor.; given for colic and tenesmus.

Whole plant contains an alk. probably identical with ephedrine (*J. Indian chem. Soc.*, 1930, 825; *Indian J. med. Res.*, 1930, 467; U.S.D., 1584).

Throughout the tropical and subtropical India.

S. grewioides Guill. & Perr.

Rajputana–*Ball*.

Seeds—ground and mixed with *gur* used as a cure for lumbago.

N.W. Provinces and Sind.

S. humilis Cav.; see **S. veronicaefolia** Lam.

S. rhombifolia Linn.

S.–*Atibala*; H. & B.–*Swet-barela*; Mal.–*Anakkuruntotti*; Tam.–*Tenacham*; Tel.–*Gubatada*.

Leaves—pounded and applied on swellings.

Stem—mucilaginous, used as demulc. and emol., both internally and externally.

Root—considered valuable in rheumatism.

Plant—used in pulmonary tuberculosis and rheumatism in Europe.

Leaves contain large amount of mucil. (U.S.D., 1584).

Widely cultivated throughout India, and a weed of waste places throughout the tropics.

S. spinosa Linn.

S.–*Nagabala*; H.–*Gulsakari*; B.–*Bon-methi*; Tel.–*Mayilumanikyam*; Tam. & Mal.–*Mayirmanikkam*.

Root bark and root—in decoct. used as a demulc. in irritability of the bladder and in gonor.

Roots—tonic, diaphor., used in debility and fevers.

Leaves—demulc., refrig., useful in cases of gonor., gleet and scalding urine.

Throughout the hotter parts of India from N.W. India to Ceylon.

S. veronicaefolia Lam.

B.–*Junka*; H.–*Bhiunli*; Tam.–*Palampasi*; Tel.–*Gayapuwaku*; S.–*Bhumibala*.

Flowers and unripe fruit—given with sugar for burning sensation in micturition.

Leaves—given in diar. of pregnancy; pounded and used as a local application to cuts and bruises.

Throughout the hotter parts of India.

SIEGESBECKIA (*Compositae*)

S. orientalis Linn.

M.–*Katampam*; Garhwal–*Lichkura*; Gujarati–*Pilibadkadi*.

Plant—depurative, sialog., cardiotonic, useful in healing gangrenous ulcers and sores and in diseases of skin and the urethra.

Crystalline bitter substance darutin (Wehmer, II, 1224).

Throughout India, ascending to 5,000 ft. in the Himalayas and other mountains.

SILENE (*Caryophyllaceae*)

S. apetala Willd.

Juice—used in eye troubles in Spain.

Plant—used in baths or as a fomentation for its emol. properties in Spain.

Peshawar.

S. conoidea Linn.

Plant—used in Spain as subst. for *S. cucubalus*.

Kashmir and Baluchistan; from Kumaon to the Indus and from Oudh to the Punjab; in W. Tibet, at Ladakh.

S. cucubalus Wibel

Plant—considered emol. and used in baths or as a fumigant in Spain.

Juice—used in ophthalmia.

Temperate Himalayas at 5,000-11,500 ft., from Nepal to the Indus.

S. gallica Linn.

Plant—used in Spain as subst. for *S. cucubalus*.

Garhwal and Carnatic.

SILYBUM (*Compositae*)

S. marianum (Linn.) Gaertn.

Leaves—aper., sudorific.

Seeds—demulc., used in haemor.

Tyramin (Wehmer, II, 1255; *Merck's Index*, 1902, 341); extracts of the drug cause a rise of blood pressure due to presence of tyramine (*Biochem. Z.*, 1922, 402; U.S.D., 1629).

Punjab, N.W. Himalayas, Peshawar, Hazara and from Kashmir to Jammu, 6,000-8,000 ft.

SISYMBRIUM (*Cruciferae*)

S. altissimum Linn.

Leaves and flowers—astrin. and antiscor.

Kashmir, up to 8,000 ft. and Chitral.

S. irio Linn.

H.–*Khubkalan*; Pers.–*Khakasi*; Merwara–*Parjan*; P.–*Maktrusa*.

Seeds—expect., stim., restor., used in asthma; externally used as a stimulating poultice.

Infusion of leaves—given in affections of the throat and chest in Spain.

Northern India, Rajputana, Punjab, Peshawar, Baluchistan and Kohat.

S. loeselii Linn.

Leaves and flowers—given in scurvy and in scrofula.

Kashmir, 5,000-8,000 ft.

S. sophia Linn.; see **Descurainia sophia** (Linn.) Webb

SKIMMIA (*Rutaceae*)

S. laureola Sieb. & Zucc. ex Walp.

Nep.–*Chumlani*; P.–*Ner*; Garhwal–*Nair*; Kumaon–*Nehar*.

Leaves—used in small-pox; the smoke produced by their burning is said to purify the air.

Essen. oil (*Ber. Schimmel u. Co., Lpz.*, 1926, April, 46; 1932, 61; *J. Soc. chem. Ind., Lond.*, 1921, 126); essen. oil contains 13% terpenes (*d*-α-pinene and *d*-β-phellandrene), 18% *l*-linalool, 63% *l*-linalyl acetate, azulene and bergaptene (*J. prakt. Chem.*, 1936, 113; *Chem. Abstr.*, 1937, 215); alk. isolated, has no specific pharmacological action (*Indian J. med. Res.*, 1938, 481); besides alk. skimnianine, a furocoumarin bergapten and a neutral substance skimmiol, the leaves contain 3 more active principles, 0·005% isopimpinellin, 0·1% umbelliferone, 0·02% laureoline; bark also contains these constituents (*Curr. Sci.*, 1947, 222; *Chem. Abstr.*, 1947, 7455).*

Temperate Himalayas from Kashmir to Kumaon, 6,000-10,000 ft. and Khasia Hills, 5,000-6,000 ft.

SMILAX (*Liliaceae*)

S. aspera Linn.

Roots—used as a subst. for Indian sarsaparilla.

Roots and stem contain a heteroside parillin and much KNO_3; extract of root diur. due to KNO_3 (*C.R. Soc. Biol., Paris*, 1938, 305; *Chem. Abstr.*, 1939, 740).

Throughout India, from Kashmir to Khasia Hills and southwards to Travancore, 4,000-7,000 ft.

S. china Linn.

S., H., B. & Bo.–*Chobchini*; M.–*Paringay*.

Root—aphrodis., sudorific, demulc., alter., used in chr. rheumatism, syphilis and skin diseases.

Saponin (Wehmer, I, 162).

Japan, China and Cochin China.

S. glabra Roxb.

H.–*Bari-chobchini*; B.–*Harina-shukchina*; Garo–*Hazina*.

Decoct. of fresh roots—used in venereal complaints and sores.

Assam, Sylhet and Lower Khasia Hills.

S. lanceaefolia Roxb.

H.–*Hindi-chobchini*; B.–*Guteashukchina*.

Fresh root—the juice taken for the cure of rheumatism, and the refuse, after extracting the juice, applied to the affected parts.

Assam and Sikkim Himalayas.

S. macrophylla Roxb.; see **S. zeylanica** Linn.

S. ovalifolia Roxb.; see **S. zeylanica** Linn.

S. prolifera Roxb.

H.–*Ram dataun*; Sing.–*Mahakabarasa*.

Root—ground with old molasses or with coagulated cows milk is mixed with water and drunk as a remedy against blood-mixed stools in dysen. and against 'aradaud', a urinary complaint, in which the urine is dark and reddish.

Tropical Western Himalayas, Kumaon, Nepal, Sylhet, Bengal, Bihar and Deccan Peninsula.

S. zeylanica Linn.

B.–*Kumarika*; H.–*Jangli aushbah*; Bo. & Marathi–*Guti*; Tam.–*Malaittamarai*; Tel.–*Kondatamara*; Mal.–*Kaltamara*.

Roots—used as a subst. for sarsaparilla in the treatment of venereal diseases; applied for rheumatism and pains in the lower extremities; used in bloodless dysen.

Throughout India.

SMITHIA (*Leguminosae*)

S. conferta Sm.

S.–*Lakshmana*; M.–*Elakanni*.

Plant—laxt., used in biliousness, rheumatism, ulcers and sterility in women; removes effects of old age and wrinkles.

Throughout India.

S. geminiflora Roth; see **S. conferta** Sm.

S. sensitiva Ait.

B.–*Nullakashina*; H.–*Odabrini*.

Plant—in the form of a lotion used for headache.

Throughout India and Andamans.

SOJA (*Leguminosae*)

S. hispida Moench; see **Glycine** max Merr.

SOLANUM (*Solanaceae*)

S. albicaule Kotschy ex Dunal

Plant—crushed and boiled in water and this water taken against ulcers.

Rajputana Desert and Sind.

S. dulcamara Linn.

S.–*Kakmachi*; P.–*Rubabarik*; Pers.–*Anabessalib*.

Berries—alter., diur., diaphor., useful in skin diseases, psoriasis, lepra, syphilitic affections, chr. rheumatism, enlargement of the liver and as hydragogue cath.

Twigs—diur., resolv., narcotic; promote all secretions and used in rheumatism, obstinate cutaneous eruptions, scrofula, etc.

Leaves, stems and fruits contain glycosidal alk. solanine; alk. solanidine mostly in leaves, young shoots and fruits; herb contains a bitter principle dulcamarin, two other saponins dulcamarinic and dulcamaretinic acid (*Arch. Pharm., Berl.*, 1835, 299; 1857, 335; *C.R. Acad. Sci., Paris*, 1856, 978; *Pharm. J.*, 1902, 160; *Arch. Pharm., Berl.*, 1875, 289; *Bull. Sci. pharm.*, 1912, 283; *Analyst*, 1929, 153; *Pharm. Zentralh.*, 1929, 151; U.S.D., 1437); berries contain lycopin (*Hoppe-Seyl. Z.*, 1932, 25; *Chem. Abstr.*, 1932, 3820);*

From Kashmir to Garhwal, 4,000-8,000 ft., Sikkim and Baluchistan.

S. ferox Linn.

B.–*Rambegun*; S.–*Garbhada*; Tam.–*Anaichundai*; Tel.–*Mulaka*; Mal.–*Anachchunta*.

Roots and berries—used medicinally in the same way as those of *S. xanthocarpum*.

Assam, Konkan, S. Mahrata Country and W. Ghats of the Madras State.

S. gracilipes Dcne.

P.–*Halun*; Ind. Baz.–*Marghipal*.

Juice of fruits and leaves—applied to ostitis.

Punjab, Sind and Baluchistan.

S. incanum Linn.

Merwara–*Asind*.

Root—used as a medicine for horses.

Plant—used as a remedy for toothache and sore throat; the decoct. taken for chest troubles.

Sind, Punjab, Merwara and W. Peninsula.

S. indicum Linn.

S.–*Vanavrintaki*; H.–*Birhatta*; P.–*Kandyari*; B.–*Byakura*; Bo.–*Ringani*; Tam.–*Papparamulli*; Tel.–*Chittimulaga*; Mal.–*Nilavalutina*.

Root—carmin., expect., useful in asthma, cough, catar. affections, difficult parturition, toothache, fevers, worm complaints, colic, in dysuria and inchuria.

Juice of leaves—with fresh juice of ginger taken to stop vomiting.

Leaves and fruit—rubbed up with sugar used as external application for itch.

Enzyme in fruits (*J. biol. Chem.*, 1934, 675; *Chem. Zbl.*, 1934, II, 2840); alk. solanine, solanidine in roots and leaves (*Indian J. med. Res.*, 1934, 269; *J. Indian chem. Soc.*, 1941, 329).*

Throughout tropical India.

S. lycopersicum Linn.; see **Lycopersicon esculentum** Mill.

S. melongena Linn.

S.–*Bhantaki*; H.–*Baigun*; B.–*Begun*; Bo.–*Baigana*; Tel.–*Vankaya*; Tam.–*Kaththiri*; Mal.–*Valuthina*; P.–*Bengan*.

Leaves—used as a narcotic.

Seeds—stim.*

Widely cultivated in India.

S. nigrum Linn.

S.–*Kakamachi*; B.–*Kakmachi*; H.–*Makoi*; Bo. & P.–*Mako*; Tam.–*Manattakkali*; Tel.–*Kamanchi*.

Berries—used in fevers, diar., eye diseases, hydrophobia.

Juice of plant—hydragogue cath., diur., alter., given in chr. enlargement of the liver, in blood-spitting, piles, dysen., etc.

Young shoots—given in skin diseases and used in psoriasis.

Decoct. of leaves—diur., laxt.

Alk. solanine, saponin in plant and berries (*Arch. Pharm., Berl.*, 1891, 527; *Pharm. Zentralh.*, 1892, 712; U.S.D., 1593); feeding experiments on sheep for toxicity showed negative results (*Aust. vet. J.*, 1939, 19).*

Throughout India, up to 9,000 ft. in the W. Himalayas.

S. spirale Roxb.

H.–*Mungas kajur*; Sylhet–*Bagua*.

Root—narcotic, diur.

Assam, Khasia Hills and E. Bengal up to 3,500 ft.

S. torvum Swartz

B.–*Titbaigun*; Assam–*Hathibhekuri*; Tam.–*Sundai*; Tel.–*Kondavuste*; Mal.–*Kattuchunta.*

Fruits—eaten as a vegetable and said to be good for enlargement of the spleen.

Fruits contain sterolin (sitosterol-*d*-glucoside) and 0·1% gluco-alk. solasonine (*J. sci. industr. Res.*, 1949, 97B; *Chem. Abstr.*, 1949, 8617).

Throughout India in the tropical region except the W. Desert area.

S. trilobatum Linn.

S.–*Alarka*; Kan.–*Mullumusta*; Mal.–*Tutavalam*; Tam.–*Tuduvalai*; Tel.–*Tellavuste.*

Root and leaves—bitter, prescribed in consumptive cases in form of decoct., powder and electuary.

Berries and flowers—given in cough.

Decoct. of plant—useful in chr. broncht.

Alk. solanine (*Rep. Sch. trop. Med., Calcutta*, 1938).

Gujarat, Deccan, S. Mahrata Country, N. Circars and Carnatic.

S. verbascifolium Linn.

Nep.–*Dursul*; H.–*Asheta*; P.–*Kalamewa*, S.–*Vidari*; Tel.–*Rasagadi*; Tam.–*Malaichundai*; Mal.–*Malanjunta.*

Dried plant—ground with warm water applied externally to inflam.; good for burns.

Alk. solanine, saponin (Wehmer, II, 1092; *J. Chim. Med.*, 1825, 517; *Pharm. Zentralh.*, 1892, 712).

Throughout the tropical and subtropical zone of India.

S. xanthocarpum Schrad. & Wendl.

S. & B.–*Kantakari*; P.–*Kandiari*; H.–*Kateli*; Bo.–*Bhuringni*; Tam.–*Kandangattiri*; Tel.–*Challamulaga*; Mal.–*Kantankattiri.*

Root—expect., used in cough, asthma, catar. fever, and pain in chest; beaten up and mixed with wine given to check vomiting.

Juice of berries—useful in sore throat.

Stem, flowers and fruits—bitter, carmin., prescribed in burning of the feet in cases attended with a vesicular, watery eruption.

Plant—used in diur. dropsy; in decoct. used in gonor.

Leaves—applied locally to relieve pain; their juice given with black pepper in rheumatism.

Bud and flower—with salt solution good for watery eyes.

Fruits yield carpesteral and 1·3% gluco-alk. solanocarpine (*Proc. Indian Acad. Sci.*, vol. 4A, 1936,255; *Chem. Abstr.*, 1937, 805; *J. Amer. chem. Soc.*, 1937, 2467; *Chem. Abstr.*, 1938, 572); fruits yield gluco-alk. solanine-S; on hydrolysis it yields alk. solanidine-S (*J. Mysore Univ.*, 1942, 117; *Chem. Abstr.*, 1943, 1437); glycosidal alk. solanocarpine obtained from the seeds believed to be identical with solanine-S (*J. Amer. chem. Soc.*, 1937, 1404; U.S.D., 1594).*

Throughout India.

SOLIDAGO (*Compositae*)

S. virga-aurea Linn.

Herb—carmin., antisep., diur., used for stone in bladder; in Europe given in dropsy.

Saponin (*Pharm. Zentralh.*, 1925, 424; *Amer. chem. J.*, 1904, 69); the flavanol glucd. quercitrin is present and accounts for its value in haemorrhagic nephritis; the saponin content probably adds to the effect (*Sci. pharm.*, 1949, 128; *Chem. Abstr.*, 1950, 5538).

Temperate Himalayas, from Kashmir eastwards 5,000-9,000 ft., and Khasia Hills, 4,000-6,000 ft.

SONCHUS (*Compositae*)

S. arvensis Linn.

H.–*Sahadevibari*; B.–*Banpalang*; P.–*Bhangra*; Tel.–*Nallatapata.*

Uses similar to *Lactuca scariola.*

Root—given in jaundice.

Bitter principle (Wehmer, II, 1262; *Mh. Chem.*, 1925, 459; *Liebigs Ann.*, 1846, 83).

Very sparingly throughout the plains of India, wild or cultivated, more common on the hills where it ascends to 8,000 ft. in the Himalayas and the Khasia Hills.

S. asper Vill.

Plant—pounded and applied to wounds or boils.

Bitter substance (*Mh. Chem.*, 1926 689).

Throughout India in fields and cultivated places, ascending to 12,000 ft. in the Himalayas.

S. maritimus Linn.

Uses similar to *Lactuca scariola.*

Punjab and Baluchistan.

S. oleraceus Linn.

Bo.–*Mhatara*; Patna–*Titaliya*; P.–*Dodak*; Tel.–*Ratrinta.*

Gum—formed by evaporation of the juice of the plant a powerful hydragogue cath.

Infusion of root and leaves—tonic, febge.

Sparingly throughout India ascending to 8,000 ft. in the Himalayas.

SONNERATIA (*Lythraceae*)

S. acida Linn. f.; see **Sonneratia caseolaris** Engl.

S. caseolaris Engl.

B.–*Archaka*; Bo.–*Chipi*; Tam.–*Kinnai*; Kan.–*Kandale*; Mal.–*Thirala*; Marathi–*Tiwar*; Uriya–*Sundarignua.*

Fruit—used as a poultice in swellings and sprains.

Fermented juice of fruit—useful for arresting haemor.

Colouring matters, archin (emodin), archinin (chrysophanic acid) (*J. sci. industr. Res.*, 1948, 202B).

Tidal creeks and mangrove swamps of India.

SOPHORA (*Leguminosae*)

S. griffithii Stocks

Juice—put into sore eyes.

Decoct. of roots—applied warm to the head to remove headache.

Seeds—powdered and mixed with oil used to kill lice in hair.

Baluchistan.

S. mollis Grah.

P.–*Buna*; Arab. & Pers.–*Arghavan*; Garhwal–*Sakina*.

Seeds—considered useful to destroy vermin.

Plains and low hills of the north-west, Hazara and the Salt Range to Kumaon and Nepal, up to 7,000 ft., Bushahr and Sahansradhara near Dehra Dun.

S. tomentosa Linn.

Burm.–*Thimbawmagyi*; Sing.–*Mudumurunga*.

Seeds and roots—considered specific in bilious sickness; used in cholera.

Alk. cytisine in roots and seeds (*Arch. Pharm., Berl.*, 1891, 561; 1894, 444; 1895, 430; *Ber. dtsch. chem. Ges.*, 1890, 3589); the poisonous seeds yield a volatile liquid alk. sophorine which is identical with cytisine (U.S.D., 1603).

Andaman and Nicobar Islands; very occasionally cultivated in Indian gardens.

SOPUBIA (*Scrophulariaceae*)

S. delphinifolia G. Don

Bo.–*Dudhali*.

Juice of the plant—astrin., applied to the feet to heal sores caused by exposure to moisture.

Bihar, Chota Nagpur, Konkan, W. Ghats, Deccan and Carnatic.

SORBARIA (*Rosaceae*)

S. sorbifolia A. Br. syn. *Spiraea sorbifolia* Linn.

Herb and flowers contain HCN Wehmer, I, 435).

Western temperate Himalayas; from Hazara to Kumaon at 4,000-11,000 ft.

SORBUS (*Rosaceae*)

S. aucuparia Linn. syn. *Pyrus aucuparia* Gaertn.

P.–*Battal*.

Fruit—used in scurvy; in form of infusion used in haemorrhoids and strangury; extract employed in gall-bladder irritations and digestive disturbances due to faulty liver function.

Bark contains HCN-glucd. (*Liebigs Ann.*, 1851, 79; 1852, 242); fruit contains the sugar sorbose, sorbitol and sorbic acid; the seeds contain 22% of a fixed oil (U.S.D., 1604).

Western temperate Himalayas, from Kashmir to Kumaon, 9,000-13,000 ft.

SORGHUM (*Gramineae*)

S. halepense (Linn.) Pers.

H. & P.–*Baru*; B.–*Kala-mucha*; Kash.–*Braham*; Kumaon–*Bikhonda*; Tel.–*Gaddijanu.*

Seeds—demulc., diur.

Rhizome contains HCN (*Chemikerztg*, 1911, 1436).

Throughout India in open places.

S. saccharatum Pers.; see **S. vulgare** (Linn.) Pers. var. **saccharatum** Boerl.

S. vulgare (Linn.) Pers.

S.–*Dirghamala*; H., P., B. & Bo.–*Joar, Jowar*; Tam.–*Cholam*; Tel.–*Jonnalu*; Mal.–*Chavela*; Kan.–*Jolah*.

Seeds—diur., demulc., aphrodis.

Glucd. dhurin, leaves contain HCN (*Proc. roy. Soc.*, 1902, 153; *Chem. News*, 1902, 301; *Chem. Zbl.*, 1921, I, 31; *J. agric. Res.*, 1924, 717; *J. chem. Soc.*, 1910, 220; *Chemikerztg*, 1911, 1436; *Chem. Zbl.*, 1912, I, 583); leaves contain HCN (*Biochem. J.*, 1929, 1099; *Chem. Zbl.*, 1931, I, 3150); leaves contain 3-25 times more HCN than stalks of plants; leaf sheaths low in HCN; upper leaves have more HCN than lower (*J. Amer. Soc. Agron.*, 1938, 725; *Chem. Abstr.*, 1938, 8470); dried leaves contain 12-75% of HCN of the entire plant depending on varieties (*J. Wash. Acad. Sci.*, 1939, 146; *Chem. Abstr.*, 1939, 4629).*

Widely cultivated in India.

S. vulgare (Linn.) Pers. var. **saccharatum** Boerl. syn. *S. saccharatum* Pers.

H. & Bo.–*Deo-dhan*; M.–*Tella-jonna.*

HCN in sap (*J. Amer. chem. Soc.*, 1903, 55).

Cultivated to some extent in all the States in India.

SOYMIDA (*Meliaceae*)

S. febrifuga A. Juss.

S.–*Rohini*; H.–*Rohun*; B. & Bo.–*Rohan*; Tam.–*Somadanam*; Tel.–*Somida*; Kan.–*Sumbi*.

Bark—astrin., bitter tonic, febge., used in general debility, intermittent fevers, diar. and dysen.

Bark contains bitter substance (*Arch. Pharm., Berl.*, 1851, 271; U.S.D., 1616).

Dry forests of the W. Peninsula, extending northwards to Merwara, the Mirzapur hills and Chota Nagpur.

SPATHOLOBUS (*Leguminosae*)

S. roxburghii Benth.

M.–*Plashi-valli*.

Decoct. of the bark—used as a remedy in dropsy, worms, bowel complaints and in snake poison.

Root contains rotenone 1·0% (*J. Amer. chem. Soc.*, 1933, 1734; *Chem. Zbl.*, 1933, I, 3954).

Plains from the foot of the Western Himalayas to Ceylon.

SPERGULA (*Caryophyllaceae*)

S. arvensis Linn.

Used as a diur. in Colombia.

In cultivated fields in various cool parts of India.

SPERMACOCE (*Rubiaceae*)

S. hispida Linn.; see **Borreria hispida** (Linn.) K. Schum.

SPHAERANTHUS (*Compositae*)

S. africanus Linn.

Herb—stomch., diur.; in Indo-China used as emol. and resolv.

Common in swamps, in damp waste ground and in mud, throughout the plains of Bengal and Sylhet.

S. indicus Linn.

S.–*Mundirika*; H.–*Mundi*; Bo.–*Gorakhmundi*; B.–*Murmuria*; Tam.–*Kottakkarandai*; Tel.–*Bodasoram*; Mal.–*Attakkamanni*.

Herb—tonic, deobstruent, alter., aphrodis.

Root and seed—anthelm.

Flowers—alter., cooling, tonic.

Decoct. of plant—used as a diur. in urethral discharges.

Rind of fruit—used as a fish poison.

Essen. oil in herb, alk. in leaves, stems and flowers (Dymock, Warden & Hooper, II, 258; *Pharm. J.*, 1884, 985); contains alk. sphaeranthine; fresh flowering plant yields essen. oil (*J. Amer. pharm. Ass.*, 1946, 274; *Chem. Abstr.*, 1947, 566).*

Throughout India ascending the Himalayas up to 5,000 ft. from Kumaon to Sikkim.

SPHENOMERIS (*Polypodiaceae*)

S. chusana Copeland syn. *Stenoloma chinensis* Bedd; *Davallia tenuifolia* Sw.

Used internally for chr. enteritis in Mauritius.

Western mountains of the Madras State at 3,000-6,000 ft.; in the Himalayas from the Simla region to Bhutan at 1,000-7,000 ft., Khasia Hills at 1,000-3,000 ft., Madhya Pradesh, Pachmarhi.

SPILANTHES (*Compositae*)

S. acmella Murr.

Bo.–*Akarkara*; Assam–*Pirazha*; P.–*Akarkarha*; Tel.–*Maratitige*.

Flowers—made into a tincture used to relieve toothache; powerful mosquito larvicide.

Seeds—chewed to produce salivation when the mouth is dry.

Crushed plant—used as fish poison.

Spilanthol obtained from flowers has strong local anaesthetic action (*J. pharm. Soc. Japan*, 1922, 460; 1927, 77; U.S.D., 1605); flowers contain also a sterol and a non-reducing polysaccharide (*J. Indian chem. Soc.*, 1945, 250; *Chem. Abstr.*, 1946, 2934).

Throughout India and up to 5,000 ft. in the Himalayas and other mountains.

S. acmella var. **oleracea** C.B. Clarke syn. *S. oleracea* Jacq.

P.–*Pakarmul*; B.–*Roshunia*; Bo.–*Akra*; M.–*Ukra*.

Flower-heads—stim., sialog., used in paralysis of tongue and affections of throat, toothache, gums and in headaches; remedy for children who stammer.

Spilanthol (*Arch. Pharm., Berl.*, 1903, 270; *Apothekerztg, Berl.*, 1908, 947).

Cultivated in gardens in India.

S. oleracea Jacq.; see **S. acmella** var. **oleracea** C.B. Clarke

SPINACIA (*Chenopodiaceae*)

S. oleracea Linn.

H. & P.–*Palak*; B. & Bo.–*Palang*; S.–*Palankya*; Tam.–*Vasaiyilaikkirai*; Tel.–*Matturbachhali*.

Leaves—cooling, useful in febrile affections, inflam. of lungs and bowels.

Seeds—laxt., cooling, used in difficult breathing, inflam. of the liver and in jaundice.

Green plant—given for urinary calculi.

Iodine, lecithin, chlorophyll, carotin; As 0·009 mg. in 100 g. leaves (*C.R.*

Acad. Sci., Paris, 1912, 893; *Chem. Zbl.*, 1912, I, 1730; 1927, I, 1327; *J. biol. Chem.*, 1920, 1); oxalic acid 0·31% (*J. Amer. chem. Soc.*, 1931, 1909); saponin; prolonged rainy weather lowers the saponin content (*Jb. wiss. Bot.*, 1937, 710; *Chem. Abstr.*, 1938, 9177); fresh plant contains 0·934% and dry plant 8·27% oxalic acid (*Chin. J. Physiol.*, 1938, 209; *Chem. Abstr.*, 1938, 9318); germinated seed contains enzymes gentiobiase, cellobiase and lichenase (Wehmer, I, 286).

Cultivated throughout India.

SPIRAEA (*Rosaceae*)

S. aruncus Linn.; see **Aruncus sylvester** Kostel.

S. sorbifolia Linn.; see **Sorbaria sorbifolia** A. Br.

SPONDIAS (*Anacardiaceae*)

S. mangifera Willd.; see **S. pinnata** Kurz

S. pinnata Kurz syn. *S. mangifera* Willd.

S.–*Amrataka*; H., B. & Bo.–*Amra*; Tam.–*Mambulichi*; Tel.–*Amratakamu*; Mal.–*Mampuli*; Kan.–*Ambate*.

Bark—refrig., useful in dysen.; ground and mixed with water rubbed on in both articular and muscular rheumatism.

Fruit—antiscor. and the pulp astrin., used in bilious dyspep.

Juice of leaves—used in earache.

Analysis of fruit (Wehmer, II, 704; *Chemikerztg*, 1897, 719).

Sub-Himalayan tract and outer valleys up to 3,000 ft., from the Chenab eastwards, Salt Range, Andamans and W. Peninsula.

STACHYS (*Labiatae*)

S. palustris Linn.

Plant—in Europe reputed vulnerary; in America used as vulnerary antisp., emetic and emmen.

Kashmir.

S. parviflora Benth.

P.–*Baggibuti, Kirimar*

Bruised stems—applied to the guinea worm.

Punjab Plains and Hills.

S. sylvatica Linn.

Plant—in France credited with tonic, emmen. and diur. properties.

Kashmir.

STACHYTARPHETA (*Verbenaceae*)

S. indica Vahl; see **S. jamaicensis** (Linn.) Vahl var. **indica** H.J. Lam.

S. jamaicensis (Linn.) Vahl var. **indica** H.J. Lam. syn. *S. indica* Vahl

M.–*Simainayuruvi*; Kan.–*Kariyuttarani*; Mal.–*Katapunuttu*.

Plant—in Brazil used externally for purulent ulcers, given internally for fevers and rheum. inflam.; in Guiana used in the treatment of dysen.

Leaves—in La Reunion used as maturant.

Glucosidic substance (*Ber. dtsch. pharm. Ges.*, 1899, 214).

Tropical India from the Punjab and Sylhet to Travancore. Sometimes cultivated.

STATICE (*Plumbaginaceae*)

S. aegyptica Pers.

Leaves—febge., stomch.

Sind, Afghanistan, Baluchistan and Egypt.

S. cabulica Boiss.

Baluchistan—*Mashnawaro.*

Plant—stomch.

Baluchistan, Waziristan.

STELLARIA (*Caryophyllaceae*)

S. aquatica Scop.

Decoct. of leaves—given as galact. in Indo-China.

Plant—used for treatment of fistula in China.

Temperate Himalayas from Nepal to Murree at 4,000-8,000 ft.

S. media Linn.

Plant—employed in plaster for broken bones and swellings, as it is supposed to be cooling and binding; in Spain used as vulnerary, astrin., and resolv.

In cultivated and waste places, roadsides and edges of streams throughout the Punjab and temperate regions of India, ascending in the Himalayas to 12,000 ft. and in W. Tibet to 14,500 ft.

S. uliginosa Murr.

Decoct. of leaves—used as galact. in Indo-China.

In wet places of temperate and alpine regions at 4,000-10,000 ft.; in the temperate and alpine Himalayas from Kashmir to Sikkim up to 16,000 ft.; Khasia Hills at 5,000-6,000 ft.

STEMODIA (*Scrophulariaceae*)

S. viscosa Roxb.

B.–*Nukachuni*; Tel.–*Bodasarum, Guntakaminamu.*

Infusion of dried plant—mucilaginous, used as a demulc.

Central and peninsular India.

STENOLOBIUM (*Bignoniaceae*)

S. stans Seem.

Tam.–*Sonnapatti*; Tel.–*Pachagotla*; Kan.–*Koranekelar*.

Root—considered remedy for snake- and rat-bites and for scorpion-sting.

Cultivated and almost run wild in some parts of India.

STENOLOMA (*Polypodiaceae*)

S. chinensis Bedd.; see **Sphenomeris chusana** Copeland

STENOTAPHRUM (*Gramineae*)

S. glabrum Trin.

Rhizome—diur., in decoct. used in Brazil as a diur. and sudorific.

In the plains throughout India.

STEPHANIA (*Menispermaceae*)

S. glabra (Roxb.) Miers

Dehra Dun–*Purha*; Garhwal–*Gindaru*; Nep.–*Nimilahara*.

Root—acrid, used in Cochin-China in pulmonary tuberculosis, asthma, dysen. and fever.

Alks. gindarine, gindaricine, gindarinine (*J. sci. industr. Res.*, 1950, 79B).

Himalayas from Simla to Sikkim, Khasia Hills, Assam.

S. hernandifolia (Willd.) Walp.

S.–*Vanatiktika*; B.–*Agnadnemuka*; Mal.–*Patavalli*; Nep.–*Tambarki*; Uriya–*Nimukha*.

Root—bitter, astrin., used in fever, diar., dyspep., urinary diseases.

Saponin (*Meded. PlTuin, Batavia.*, 1897, 97; 1898, 124; *Bull. Inst. bot. Buitenz.*, 1902, 14).

W. and E. coast, Dehra Dun, Bihar, Cachar, Sikkim, E. Bengal and Assam.

S. rotunda Hook. f. & Th.; see **S. glabra** (Roxb.) Miers

STEPHEGYNE (*Rubiaceae*)

S. parvifolia Korth.; see **Mytragyna parvifolia** Korth.

STERCULIA (*Sterculiaceae*)

S. alata Roxb.; see **Pterygota alata** R. Br.

S. balanghas Linn.

Mal.–*Kavalam*; Sing.–*Nawa*.

Fruit—considered cooling and laxt. in the Philippines.

Throughout the hotter parts of India.

S. foetida Linn.

H. & Bo.–*Janglibadam*; Kan.–*Penari*; Tam. & Mal.–*Pinari*; Tel.–*Manjiponaku*.

Oil from seed—laxt., carmin.

Leaves—repellent, aper.

Decoct. of fruit—mucilaginous, astrin.

Seeds and fruit pulp contain fatty oil (Wehmer, II, 767; *Chem. Zbl.*, 1903, I, 1249; *Philipp. J. Sci.*, 1915, 105).

Konkan, forests of the W. coast of the Madras State at low elevations.

S. rubiginosa Vent.

Fruit—laxt.

Burma, from Singapore to Penang, Cochin-China, Java and Sumatra.

S. scaphigera Wall.; see **Scaphium wallichii** Schott & Endl.

S. urens Roxb.

M.P. & Bo.–*Gulu*; H.–*Karrai*; Kan.–*Bhuiali*; Konkani–*Pandruk*; Mal.–*Tonti*; Tam.–*Vellaipputtali*; Tel.–*Ponaku*.

Gum—used as subst. for tragacanth; used in throat affections.

Leaves and tender branches—when steeped in water yield a mucilaginous extract useful in pleuro-pneumonia in cattle.

Gujarat, Konkan, Deccan, N. Kanara, S. Mahrata Country, dry forests of the Madras State, Rajputana, N. and Central India and Chota Nagpur.

STEREOSPERMUM (*Bignoniaceae*)

S. chelonoides DC.; see **S. tetragonum** DC.

S. suaveolens DC.

S.–*Patala*; H. & Bo.–*Paral*; B.–*Parul*; Tam.–*Padiri*; Tel.–*Kokkesa*; Mal.–*Pupatiri*; P.–*Padal*; Kan.–*Hude*.

Root bark—considered cooling, diur., tonic; forms an ingredient in dasamula.

Flowers—rubbed up with honey given to check hiccough; taken in form of a confection as an aphrodis.

Root bark contains bitter substance (*Meded. PlTuin, Batavia*, 1897, 39; 1899, 136).

Throughout India in drier localities than *S. tetragonum*, often planted.

S. tetragonum DC. syn. *S. chelonoides* DC.

H.–*Pader*; B.–*Dharmar*; Bo.–*Padal*; S.–*Patoli*; Kan.–*Kaludi*; Mal.–*Karinkara*; Tam.–*Kural*; Tel.–*Kaligottu*.

Root, leaves and flowers—used in decoct. as a febge.

Juice of leaves—mixed with lime juice used in maniacal cases.

Flower and fruit—in scorpion-sting.

Bark contains crystalline bitter substance (*Meded. PlTuin, Batavia*, 1897, 39; 1899, 136).

Throughout moist regions of India.

S. xylocarpum Benth. & Hook. f.; see **Radermachera xylocarpa** K. Schum.

STEUDNERA (*Araceae*)

S. virosa (Kunth) Prain
B.–*Bish kachu.*
Plant—poisonous, used medicinally.
Chittagong in Bengal and Assam.

STIPA (*Gramineae*)

S. capillata Trin.
Grass—frequently kills sheep, not by a direct poisonous action, but by its glumes working through the skin into the vital organs.
W. Himalayas, ascending up to 11,000 ft. in Kashmir.

S. sibirica Lam.
Grass—actively poisonous to horses and other domestic animals.
W. temperate Himalayas, from Kashmir to Kunawar up to 8,000-9,000 ft.

S. tortilis Desf.
HCN-glucd. (*J. Pharm. Chim., Paris,* 1908, 542).
Punjab, Peshawar and Waziristan.

STRANVAESIA (*Rosaceae*)

S. glaucescens Lindl.
Kumaon–*Garmehal.*
Leaves contain HCN (*Arch. Pharm, Berl.,* 1906, 670).
Western and Central Himalayas; Kumaon 3,000-7,500 ft., Khasia Hills, 4,000-5,000 ft. and Nepal.

STREBLUS (*Moraceae*)

S. asper Lour.
S.–*Shakhotaka*; H.–*Siora*; B.–*Sheora*; Bo.–*Karvati*; Mal.–*Paruva*; P.–*Dahya*; Tam.–*Piray*; Tel.–*Barinika.*
Decoct. of bark—given in fever, dysen. and diar.
Roots—used as application to unhealthy ulcers and sinuses; antid. to snake-bite.
Milky juice—antisep., astrin., applied to chapped hands and sore heels.
Bark contains bitter substance (*Ned. Tijdschr. Pharm. Chem. Toxic.,* 1896, 204).
Drier parts of India, from Rohilkhand, eastwards and southwards to Travancore and Andaman Islands.

STRIGA (*Scrophulariaceae*)

S. gesneroides (Willd.) Vatke syn. *S. orobanchioides* Benth.
H.–*Lalagia*; Marathi–*Tambadikarichagvat*; Gujarati–*Ratoagio.*
Plant—used in diabetes.
W. Peninsula.

S. lutea Lour.
S.–*Kuranti*; Gujarati–*Agiyo*; Marathi–*Laghukurandika.*
Plant—bitter, improves appetite and taste, useful in strangury and diseases of blood.
Sind, Punjab, Bengal and W. Peninsula.

S. orobanchioides Benth.; see **S. gesneroides** (Willd.) Vatke

STROBILANTHES (*Acanthaceae*)

S. auriculatus Nees
Santh.–*Gadakalha*; Bo.–*Kara*; Tam.–*Kurinji.*
Pounded leaves—rubbed on the body during the cold stage of intermittent fever.
Upper Gangetic Plain, Madhya Bharat up to 4,000 ft., Chota Nagpur and Madhya Pradesh.

S. callosus Nees
Bo. & Marathi–*Karvi*; Pachmarhi–*Maruadana.*
Bark—emol., used for fomentation in tenesmus and as external application in parotitis.
Flowers—vulnerary.
Madhya Bharat, Konkan, Deccan, N. Kanara, W. Ghats of Bombay State.

S. ciliatus Nees
Bo.–*Karvi*; Tam.–*Kurinji.*
Bark—emol.
Flowers—vulnerary.
Kanara to Travancore.

STROPHANTHUS (*Apocynaceae*)

S. dichotomous Wall.; see **Strophanthus wallichii** A.DC.

S. wallichii A.DC. syn. *S. dichotomous* Wall.
Seeds—poisonous.
Leaves, bark and seeds contain strophanthin like tox. glucd. (Wehmer, II, 995; *Meded. PlTuin, Batavia,* Nr. XXV, 124; *Chem. Zbl.,* 1905, II, 975); seeds contain a powerful cardiac poison (*Pharm. J.,* 1936, 147; *Chem. Abstr.,* 1936, 7785).
N. Circars, in the mountains.

S. wightianus Wall.
Contains strophanthin (Wehmer, II, 996).
W. Coast, in Malabar and Travancore.

STRYCHNOS (*Loganiaceae*)

S. aenea A.W. Hill syn. *S. rheedii* Clarke
H. & B.–*Kuchilalata*; M.–*Nagamusadi.*
Uses similar to *S. nux vomica.*
Contains brucine but no strychnine (Trease, 465).
W. Ghats, Anamalais and hills of Travancore at 2,000-4,000 ft.

S. bourdilloni Brandis; see **S. cinnamomifolia** Thw.

S. cinnamomifolia Thw.

M.–*Valli-kanjiram*; Sing.–*Etakirindiwel.*

Decoct. of the root—applied in rheumatism, ulcers, elephantiasis, fever and epilepsy.

Brucine and strychnine (*Yearb. Pharm.*, 1924, 646).

Deccan, forests of Kurnool and Mysore; W. Ghats, S. Kanara to Travancore in evergreen forests up to 3,000 ft.

S. colubrina Linn.

H. & B.–*Kuchilalata*; Bo.–*Goagarilakei*; Mal.–*Modirakaniram*; Marathi–*Kajarvel*; Tel.–*Nagamushti.*

Fruit—bruised and applied to the head in mania.

Root—rubbed down with pepper given to check diar.; boiled with oil used as liniment for pains in the joints.

Fresh leaves—rubbed into a paste with cashewnut kernel applied to suppurating tumours.

Seeds, bark and wood contain brucine and strychnine (*Arch. Pharm., Berl.*,1892, 401; 1901, 491; *Pharm. J.*, 1879, 1013).*

W. and S. India in Bombay, Konkan, Poona, Kanara, Carnatic, Veligonda Hills of Nellore and W. Coast from S. Kanara to Travancore to the lower forests of W. Ghats.

S. gautheriana Pierre; see **S. malaccensis** Benth.

S. ignatii Berg.

H., B. & Bo.–*Pipita*; M.–*Kayap-pan kottai.*

Uses similar to *S. nux vomica.*

Strychnine, brucine (*Arch. Pharm., Berl.*, 1889, 145; U.S.D., 1486).*

Philippines.

S. malaccensis Benth. syn. *S. gautheriana* Pierre

Uses similar to *S. nux vomica*; particularly said to be used in chr. skin diseases.

Brucine, strychnine (*Arch. Pharm., Berl.*, 1892, 348; U.S.D., 1479).

Andamans or Tenasserim.

S. nux vomica Linn.

S.–*Visha-mushti*; H.–*Kuchla*; B. & P.–*Kuchila*; Bo.–*Kajra*; Kan.–*Kanjira*; Mal.–*Kanniram*; Tam.–*Etti*; Tel.–*Mushti.*

Root bark—ground up into a fine paste with lime juice and made into pills which are said to be effectual in cholera.

Leaves—applied as poultice to sloughing wounds and ulcers, specially in cases when maggots have formed.

Seeds—with aromatics given in colic.

Wood—used for dysen., fevers and dyspep.

Leaves, bark, wood and root contain strychnine, brucine; investigation shows that the alkaloidal content is not altered by long storage in a moist condition; adulteration of the seeds with *S. blanda*, a non-strychnine-bearing seed, appears to be the real cause of the reported variation (*Quart. J. Pharm.*, Dec. 1932); 3 new alks. α & β colubrine and pseudo-strychnine (*Helv. chim. acta*, 1931, 997; *Chem. Zbl.*, 1932, I, 824); therapeutic value of seeds is due entirely to the two alks., brucine and strychnine although other substances present are of some interest (U.S.D., 753); fleshy portions of fruit contain the same alks. besides the glucd. loganin (Wehmer, II, 962).

Forests of Gorakhpur, Bihar, Orissa, Konkan, N. Kanara, N. Circars, Deccan, Carnatic, W. Coast of Madras State in deciduous forests and up to 4,000 ft. in the hilly country, Travancore.

S. potatorum Linn. f.

S.–*Kataka*; H., P., B. & Bo.–*Nirmali*; Tam.–*Tetankottai*; Tel.–*Katakamu*; Mal.–*Katakam.*

Seeds—used as a local application in eye diseases; rubbed with honey and little camphor, the mixture applied to the eyes in lachrymation or copious watering; used as emetic in dysen., in diabetes and gonor.

Brucine (*Arch. Pharm., Berl.*, 1892, 549; U.S.D., 1609).

Konkan, N. Kanara, Madhya Bharat, N. Circars, Deccan, Carnatic to S. Travancore.

S. rheedii Clarke; see **S. aenea** A. W. Hill

S. wallichiana Benth.

Used as arrow poison in the Malay Peninsula.

Plant has its greatest effect in paralysing the peripheral nerves (U.S.D., 1492).

Sylhet, Assam and Mikir Hills.

STYRAX (*Styraceae*)

S. benzoin Dryand.

H., B. & Bo.–*Luban*, M.–*Shambirani.*

Balsamic resin—external antisep., stimulating expect.

(*Parfum. mod.*, 1925, 117, 143; *Pharm. Weekbl.*, 1936, 374; U.S.D., 147).*

Malacca and Malaya.

S. officinalis Linn.

B.–*Silajit*; Bo.–*Usturak.*

Resin—stimulating expect.

A native of Levant, Asia Minor and Syria.

S. serrulatum Roxb.

B.–*Kam-jameva*.

Resin—uses similar to resin from *S. benzoin*.

Eastern India, 3,000-7,000 ft., Bhutan and Nepal.

SUAEDA (*Chenopodiaceae*)

S. fruticosa Forsk.

P.–*Lunak*; Bo.–*Morasa*.

Leaves—as a poultice applied to ophthalmia; infused in water used as an emetic.

Woolly excrescenses on the tips of the branches—mixed with an empyreumatic oil used as application to sores on the backs of camels.

N.W. India, Punjab, Sind, Baluchistan, Kathiawar and Western Peninsula.

S. monoica Forsk.

Tam.–*Karuvumari*; Tel.–*Koyyalakura*; Uriya–*Nunia*.

Plant—made into an ointment used for wounds.

Baluchistan, Sind, Konkan and E. Coast from the Kistna southwards.

SWERTIA (*Gentianaceae*)

S. affinis Clarke; see **S. angustifolia** var. **pulchella** Burkill

S. alata Royle ex D. Don

P.–*Hatmul*; Kash.–*Bui*.

Infusion of plant—used as a tonic and febge.

Temperate W. Himalayas, 4,000-6,000 ft., from Kashmir to Kumaon.

S. angustifolia Buch.–Ham.

H.–*Pahari chiretta*; Marathi–*Pahadikiraita*.

Plant—used as a subst. for *S. chirata*

Subtropical Himalayas, 1,000-6,000 ft., from the Chenab to Bhutan.

S. angustifolia var. **pulchella** Burkill

Plant—bitter, tonic, antiper.

Chota Nagpur, N. Circars, Deccan, W. Ghats from the Nilgiris southwards at 2,000-6,000 ft.

S. chirata Buch.–Ham.

S.–*Kairata*; H. & B.–*Chireta*; Bo.–*Chiraita*; Tam. & Tel.–*Nilavembu*; Mal.–*Nelaveppa*.

Plant—bitter, tonic, stomch., febge., laxt.

Plant contains bitter substance chiratin and ophelic acid (*Arch. Pharm.*, *Berl.*, 1869, 213; *Pharm. J.*, 1919, 82; U.S.D., 1398); chiratin resolved into two compounds of well-defined melting point (*J. Indian Inst. Sci.*, 1933, 29 A).

Temperate Himalayas, 4,000-10,000 ft., from Kashmir to Bhutan and Khasia Hills, 4,000-5,000 ft.

S. corymbosa Wight

Plant—used as a subst. for *S. chirata*.

Mountains of the S. Deccan Peninsula, 4,000-7,000 ft.

S. decussata Nimmo ex Grah.

Dec.–*Silajit*; Mahabaleshwar–*Kadu*.

Plant—a good subst. for *S. chirata* and *Gentiana kurroo*.

W. Ghats of Bombay State.

S. lawii Burkill

Plant—used as a subst. for *S. chirata*.

Mountains of the W. Peninsula of India.

S. paniculata Wall.

Bo. & Marathi–*Kadavi*.

Plant—used as a subst. for *S. chirata*

Temperate W. Himalayas, 5,000-8,000 ft., from Kashmir to Nepal.

S. perennis Linn.

Gentiopicrin (*J. Pharm. Chim.*, *Paris*, 1912, 481).

N. Temperate regions.

S. purpurascens Wall.

H.–*Chirettah*.

Plant—used as a subst. for *S. chirata*.

Temperate N.W. Himalayas, 5,000-12,000 ft., from Kashmir to Kumaon.

SYMPLOCOS (*Symplocaceae*)

S. crataegoides Buch.–Ham.; see **S. paniculata** Wall.

S. paniculata Wall.

P.–*Lodar*; Bo. & H.–*Lodh*; S.–*Lodhra*.

Bark—uses same as of *S. racemosa*; considered tonic; used in ophthalmia.

Himalayas up to 9,000 ft. from the Indus to Assam and Khasia Hills.

S. racemosa Roxb.

S.–*Lodhra*; H., B. & Bo.–*Lodh*; Tel.–*Lodduga*; Assam–*Bhomroti*.

Bark—cooling, astrin., useful in menor., bowel complaints, eye diseases, ulcers; in decoct. used as a gargle for giving firmness to spongy and bleeding gums.

Bark contains two alkaloids, loturine and colloturine which are chemically related to harmine found in *Peganum harmala* (*Ber. dtsch. chem. Ges.*, 1878, 1542; *Mh. Chem.*, 1920, 401; *Chem. Zbl.*, 1921, I, 292; U.S.D., 1621).*

Throughout N.E. India, up to 2,500 ft., from the Terai of Kumaon to Assam and Chota Nagpur.

SYNANTHERIAS (*Araceae*)

S. sylvatica Schott; see **Amorphophallus sylvaticus** (Roxb.) Kunth

SYNEDRELLA (*Compositae*)

S. nodiflora Gaertn.

Boiled leaves—used as laxt. by natives of Gold Coast.

Occurs in cultivated places in Assam.

SYRINGA (*Oleaceae*)

S. emodi G. Don

P.–*Shafri*, *Kehimu*; Kumaon–*Tworsing*.

Seeds—astrin.

Seeds contain a bitter principle.

Subalpine Himalayas, 9,000-12,000 ft., from Kashmir to Kumaon.

S. persica Linn.

Glucd. syringin (*J. Pharm. Chim., Paris*, 1906, 145).

West Kashmir, 8,000 ft., possibly wild; frequently cultivated in India.

SYZYGIUM (*Myrtaceae*)

S. aromaticum (Linn.) Merr. & L.M. Perry syn. *Eugenia aromatica* Kuntze; *E. caryophyllata* Thunb.; *Caryophyllus aromaticus* Linn.

S. & B.–*Lavanga*; H. & P.–*Laung*; Bo.–*Lavang*; Tam.–*Krambu*.

Dried flower buds—stim. arom., carmin., used in flatulence and dyspep.

Essen. oil containing eugenol (*Analyst*, 1909, 519; *Ber. Schimmel u. Co., Lpz*., 1912, April, 92; I.P.C., 56).

A native of Moluccas. Cultivated in S. India.

S. cumini (Linn.) Skeels syn. *Eugenia jambolana* Lam.

S. & Bo.–*Jambu*; H.–*Jamun*; B.–*Jam*; Tam.–*Neredam*; Tel.–*Jambuvu*; Mal.–*Naval*.

Bark—astrin., used in the preparation of astrin. decoctions, gargles and washes; fresh juice given with goat's milk in the diar. of children.

Juice of leaves—used in dysen.

Juice of ripe fruit—made into a vinegar used as a stomch., carmin. and as diur.

Fruit—useful astrin. in bilious diar.

Seeds—used in diabetes.

Glucd., essen. oil in seeds (*Pharm. J*., 1912, 414; *J. Amer. chem. Soc*., 1916, 2805); no glucd. (*Indian For*., 1939, 377); seeds contain ellagic acid (*Pharm. J*., 1913, 245); an alk. jambosine was reported (U.S.D., 1448); an aqueous extract of the seeds found to cause marked, prolonged decrease in blood sugar upon hypodermic injection into dogs; oral administration had no such effect (*C.R. Soc. Biol., Paris*, 1940, 150; U.S.D., 1448).

Throughout India.

S. hemispherium (Walp.) Alston syn. *Eugenia hemispherica* Wight; *Jambosa hemispherica* Walp.

Kan.–*Banenerale*; Mal.–*Payanaval*; Tam.–*Vellainaval*.

Decoct. of bark—used in biliousness and syphilis.

West Peninsula, Ceylon up to 4,000 ft.

S. jambos (Linn.) Alst. syn. *Eugenia jambos* Linn.

S.–*Jambu*; H. & Bo.–*Gulabjaman*; B.–*Gulabjamb*; Tam.–*Perunaval*; Tel.–*Jambuneredu*; Mal.–*Jambavam*.

Bark—astrin.

Leaves—boiled and used for sore eyes.

Fruit—used in liver complaints

Leaves and bark contain alk. jambosine (*Pharm. J*., 1884, 717); tannin (*Amer. J. Pharm*., 1894, 209); an oleoresin and minute quantities of an alk. (U.S.D., 1493).*

Sikkim Terai.

S. operculatum Gamble syn. *Eugenia operculata* Roxb.

H.–*Rai-jaman*; Garhwal–*Paiman*; Mal.–*Naral*; S.–*Bhumijambu*.

Root—boiled down to the consistence of a syrup, applied to the joints by rubbing.

Fruit—eaten for rheumatism.

Leaves—used in dry fomentation.

Leaves contain essen. oil (*Ber. Schimmel u. Co., Lpz*., 1931, 86).

Sub-Himalayan tract from the Jumna eastwards, common in savannahs in Sal forests, Bihar, Orissa, Assam, Sylhet, Cachar and Chittagong.

S. zeylanicum DC. syn. *Eugenia spicata* Lam.

Mal.–*Nyara*; Tam.–*Marungi*; Kan.–*Nerkal*; Marathi–*Bhedas*; Uriya–*Sagarabatna*.

Plant—held in great repute as stim., antirheumatic and antisyp. in Indo-China.

W. Peninsula, Orissa and Sylhet.

TABERNAEMONTANA (*Apocynaceae*)

T. coronaria R. Br.; see **Ervatamia coronaria** Stapf

T. dichotoma Roxb.; see **Ervatamia dichotoma** (Roxb.) Blatter

T. heyneana Wall.; see **Ervatamia heyneana** T. Cooke

TACCA (*Taccaceae*)

T. aspera Roxb.

B., H. & S.–*Varahikanda*; Marathi–*Dukarkanda*.

Tuber—tonic, useful in haemorrhagic diathesis, skin diseases and leprosy.

Chittagong.

T. pinnatifida Forst.

Bo.–*Diva*; Tam.–*Karachunai*; Tel.–*Chanda*; Mal.–*Chanekizhanna*; Dec.–*Barakanda*.

Rootstock—bitter, full of starch, which, when prepared, is of excellent culinary properties and useful in dysen. (Wehmer, I, 167; *Pharm. Ztg, Berl.*, 1892, 770).

Bengal, Bihar, Chota Nagpur, Madhya Bharat, Konkan, Mysore and Malabar.

TAGETES (*Compositae*)

T. erecta Linn.

H., P. & B.–*Genda*; Bo.–*Guljajari*; S.–*Zanduga*; M.–*Turukkasamandi*; Tel.–*Banti*.

Flowers—used in diseases of the eyes, for unhealthy ulcers; internally said to purify the blood; their juice given for bleeding piles.

Leaves—used as an application for boils and carbuncles; their juice given in earache.

Essen. oil, colouring matter; (*Proc. chem. Soc., Lond.*, 1902, 75; *Ber. Schimmel u. Co., Lpz.*, 1908, Oct., 147); Indian flowers contain the pigment quercetagetin (*J. Indian chem. Soc.*, 1938, 87); whole plant yields 0·01% essen. oil (*Parfums de Fr.*, 1936, 6, 306; *Chem. Abstr.*, 1936, 2705; 1937, 1956); quercetagitrin, a glucd. of quercetagetin isolated from the dried petals (*Proc. Indian Acad. Sci.*, vol. 14A, 1941, 289; *Chem. Abstr.*, 1942, 2555).

Grown in gardens in India.

TAMARINDUS (*Leguminosae*)

T. indica Linn.

S.–*Tintrini*; H., P. & Bo.–*Imli, Amli*; B.–*Ambli, Tentul*; Tam.–*Amilam*; Tel.–*Amlika*; Mal.–*Amlam*.

Fruit—refrig., digest., carmin., laxt., useful in diseases caused by deranged bile; their infusion employed as a drink in febrile diseases.

Fruit contains trace of oxalic acid (*Chem. Zbl.*, 1905, II, 1042; 1923, II, 1170; *Hoppe-Seyl. Z.*, 1923, 80; U.S.D., 1180).

Cultivated throughout India; self-sown in waste places and forest lands in Madhya Pradesh, Madhya Bharat and S. India.

TAMARIX (*Tamaricaceae*)

T. aphylla Karst. syn. *T. articulata* Vahl

H.–*Lal-jhav*; B.–*Rakta-jhav*; Bo.–*Magiya-main*; Tam.–*Sivappattushavukku*; Tel.–*Ettashirisaru*; P.–*Farash*.

Galls—astrin.

Bark—bitter, astrin; powdered and in combination with oil and *Kamala* used as aphrodis.; used as application in eczema capitis.

Gall with 36·8-43·9% tannin, bark 10% tannin, wood 1% tannin (Wehmer, II, 794; *Chem. Zbl.*, 1928, II, 1412; 1929, I, 1012).

Punjab Plains, Sind, Cutch, Baluchistan; also occasionally planted in gardens.

T. articulata Vahl; see **T. aphylla** Karst.

T. dioica Roxb.

H.–*Jhau*; B.–*Laljhau*; Bo.–*Jao*; P.–*Pilchi*; S.–*Pisula*; Tam.–*Nirumari*; Tel.–*Palivela*.

Galls and twigs—used as an astrin.

Throughout N. India, up to 2,500 ft. in the outer Himalayan valleys, Sind, Bombay, Bengal, Assam and Santal Parganas. Common along the Ganges, Hooghly and forms extensive forests along the Indus in Sind. Also found along the seacoast, Mt. Abu, in sandy river beds and on the seacoast of the Madras State.

T. gallica Linn. syn. *T. troupii* Hole

S.–*Jhavuka*; H. & B.–*Jhau*; Bo. & Gujarati–*Javnu-jhadu*; Mal.–*Jhavukam*; Tam.–*Sirusavukku*; Tel.–*Sirasaru*; P.–*Pilchi*.

Galls—astrin., given internally in dysen. and diar.

Manna—laxt., expect. and detergent.

Galls contain as much as 40% tannic acid (Kirt. & Basu, I, 248).

Punjab, Uttar Pradesh, Sind, Baluchistan and Mt. Abu.

T. troupii Hole; see **T. gallica** Linn.

TANACETUM (*Compositae*)

T. fruticulosum Ledeb.

Herb—tonic, anthelm.

W. Himalayas, 12,000-15,000 ft.

T. gracile Hook. f. & Th.

Plant—considered cure for fevers.

Alpine W. Himalayas, from Kashmir to N. of Kumaon, 13,500 ft.

TARAKTOGENOS (*Flacourtiaceae*)

T. kurzii King; see **Hydnocarpus kurzii** (King) Warb.

TARAXACUM (*Compositae*)

T. officinale Weber

P.–*Kanphul*; Bo.–*Bathur*; Ladakh–*Rasuk*.

Root—diur., tonic, aper., used as remedy for chr. disorders of kidney and liver.

Leaves—used for fomentation.

A bitter crystalline principle taraxacin and a crystalline substance taraxacerin; the phytosterols taraxasterol and homotaraxasterol also present in the drug (*Arch. Pharm., Berl.*, 1861, 6; *J. chem. Soc.*, 1912, 2411; 1913, 399; *Chem. & Drugg.*,1912, 822; *Mh. Chem.*, 1926, 681; *Chem. Zbl.*, 1927, I, 2326; U.S.D., 1189); saponin (*Schweiz. Apoth-Ztg*, 1926, 16).

Throughout the Himalayas, from 1,000-18,000 ft. and Mishmi Hills.

TARENNA (*Rubiaceae*)

T. asiatica Gaertn.

M.–*Kura.*

Leaves—used in skin diseases.

W. Peninsula from Konkan southwards.

TAVERNIERA (*Leguminosae*)

T. cuneifolia Arn.

Bo.–*Jetimad.*

Leaves—applied to ulcers as a poultice.

Deccan, Gujarat, Punjab, Sind and Baluchistan.

T. nummularia Baker in Fl. Br. Ind., II, 140 (non DC.); see **T. cuneifolia** Arn.

TAXUS (*Taxaceae*)

T. baccata Linn.

H., Kash. & P.–*Birmi*; B.–*Bhirmie*; Bo.–*Barmi*; Khasia–*Dingsableh*; Kumaon–*Thuner*; Bushahr–*Arkhau.*

Leaves and fruits—emmen., sedative, antisp.

Leaves—used in asthma, broncht., hiccough, for indign. and epilepsy, as an aphrodis.

Plant—poisonous, used as fish poison.

Alk. taxine, the toxic principle contained in leaves, shoots and seeds, (*J. chem. Soc.*, 1902, 874; 1931, 2138; *Hoppe-Seyl. Z.*, 1921, 240; *J. pharm. Soc. Japan*, 1922, 1074); leaves contain alk. taxine, taxinine, traces of ephedrine (*J. pharm. Soc. Japan*, 1931, 37; *Chem. Zbl.*, 1931, II, 1867; *J. chem. Soc.*, 1931, 2148); alkaloidal content maximum during winter; alk. taxine is vigorously active heart poison (*Dtsch. Apoth-Ztg*, 1937, 1265; *Chem. Abstr.*, 1938, 723); yields a glucd. taxicatin (*Arch. Pharm., Berl.*, 1943, 205; *Chem. Abstr.*, 1944, 5883); in rabbits the lethal intravenous dose of taxine is between 2 and 3 mg. per kilo and it is depressant both to heart and to respiration (*Quart. J. Pharm.*, 1932, 205; U.S.D., 1623).

Temperate Himalayas at 6,000-11,000 ft. and Khasia Hills at 5,000 ft.

TECOMA (*Bignoniaceae*)

T. stans HBK.; see **Stenolobium stans** Seem.

T. undulata G. Don; see **Tecomella undulata** (G. Don) Seem.

TECOMELLA (*Bignoniaceae*)

T. undulata (G. Don) Seem.

H. & Bo.–*Rugtrora*; Marathi–*Rakhtreora*; P.–*Rohira*; S.–*Rohi.*

Bark of young branches—used as a remedy for syphilis.

Punjab, Sind, Waziristan, Baluchistan, Rajputana, Kathiawar, Gujarat and the Deccan.

TECTONA (*Verbenaceae*)

T. grandis Linn. f.

S.–*Saka*; H., P. & Bo.–*Sagwan*; B.–*Segun*; Tam.–*Tekku*; Tel.–*Peddateku*; Mal.–*Tekka*; Kan.–*Tega*; Assam–*Chingjagu.*

Wood—powdered and made into a plaster used for hot headaches and for swellings; internally taken in dyspep., with burning of stomach; vermifuge.

Ashes of wood—applied to swollen eyelids.

Bark—astrin.

Oil from nuts—promotes growth of hair, useful in scabies.

Flowers and seeds—diur.

Wood contains resin 2.93% which is irrit. to the skin, a little essen. oil and fatty oil (Wehmer, II, 1024; *J. chem. Soc.*, 1887, 868; *Ber. dtsch. chem. Ges.*, 1877, 2234; *Ber. dtsch. pharm. Ges.*, 1914, 385); wood contains quinine-like substance tectoquinine (*Bull. chem. Soc. Japan*, 1932, 114; *Chem. Zbl.*, 1932, II, 871; *J. Indian chem. Soc.*, 1933, 401).

Konkan, W. Ghats of Bombay and Madras States, Circars, Deccan, Carnatic and Madhya Bharat.

TEPHROSIA (*Leguminosae*)

T. candida (Roxb.) DC.

H.–*Lashtia.*

Plant—used as a fish poison.

Extracts made with chlorinated solvents from leaves, roots and stems are more toxic than extracts made from non-chlorinated solvents such as benzene, alcohol, etc. (*Proc. Lenin Acad. agric. Sci.*, 1941, 21; *Chem. Abstr.*, 1943, 6747).

Tropical Himalayas from Garhwal to Khasia and Assam up to 5,000 ft. in Sikkim, Chittagong, Sameshwar Hills. Occasionally grown as an ornamental plant.

T. petrosa Blatter & Halb.
S.–*Kanthalu*; Rajputana–*Bishoni.*

Leaves—boiled in water and eaten considered good against syphilis.

W. Rajputana; Jodhpur, Jaisalmer.

T. purpurea (Linn.) Pers.
S.–*Sharapunkha*; B.–*Bannilgach*; Bo.–*Sarphunkha*; H. & P.–*Sarphonka*; Kan.–*Phanike*; Mal.–*Kolinnil*; M.–*Mollukkay.*

Plant—tonic, laxt., used as anthelm. for children; used internally as a purifier of the blood and considered a cordial.

Root—bitter, given in tympanitis, dyspep., and chr. diar., used as a fish poison.

Fresh root bark—ground and made into a pill, with a little black pepper, given in cases of obstinate colic.

Glucd. rutin (*J. chem. Soc.*, 1910, 1833); roots contain tephrosin, deguelin, isotephrosin, rotenone, etc. (*Science*, 1930, 396; 1931, 17; *Chem. Abstr.*, 1930, 2752; 1931, 1509; *Chem. Zbl.*, 1931, I, 1459; *J. Amer. chem. Soc.*, 1932, 4454; *Chem. Zbl.*, 1933, I, 1948); leaves contain about 2% of a glucd. osyritin (*Proc. chem. Soc., Lond.*, 1910, 16; *Chem. Abstr.*, 1910, 440; *J. Bombay nat. Hist. Soc.*, 1941, 896).

All over India and ascending the Himalayas up to 6,000 ft.

T. villosa Pers.
Tam.–*Punaikkaivetlai*; Tel.–*Nuguvempali*; Porebunder–*Runchhali sarpankho*; Uriya–*Sroetokolothiya.*

Juice of leaves—given in dropsy, useful in diabetes.
(*Indian J. Pharm.*, 1945, 60).

Throughout the plains of India.

TERAMNUS (*Leguminosae*)

T. labialis Spreng.
S.–*Mashaparni*; H.–*Mashoni*; B.–*Mashani*; Gujarati–*Valiyovelo*; M.–*Kattulandu.*

Fruit—astrin., stomch., febge., used in nerve diseases, paralysis and rheumatism; in La Reunion considered very useful in catarrhs and haemoptysis.

Throughout India.

TERMINALIA (*Combretaceae*)

T. arjuna W. & A.
S.–*Arjuna*; H., Bo. & B.–*Arjun*; Gujarati–*Arjunasadara*; P.–*Arjan*; Tam.–*Marudu*; Tel.–*Tellamaddi*; Mal.–*Vellamarutu.*

Bark—tonic, astrin., febge., used in heart diseases as a cardiac tonic, in bilious affections, for sores and as an antid. to poisons.

Fruit—tonic, deobstruent.

Juice of fresh leaves—used for earache.

Ashes of bark—prescribed in scorpion-sting.

Bark contains a crystalline compound arjunine, a lactone, arjunetin, essen. oil, tannin., reducing sugars and colouring matter (*Proc. Acad. Sci., Unit. Prov.*, 1935, 50; *Chem. Abstr.*, 1936, 1179; *Proc. nat. Acad. Sci. India*, 1936, 305; *Chem. Abstr.*, 1937, 6206; *Indian med. Gaz.*, 1929, 70; I.P.C., 23).

Throughout the greater part of India. In the sub-Himalayan tract, Chota Nagpur, Madhya Bharat, Madhya Pradesh, parts of the Bombay and Madras States.

T. belerica Roxb.
S.–*Bahira*; H., P. & B.–*Bahera*; Bo.–*Behara*; Tam.–*Akkam*; Tel.–*Tandra*; Mal.–*Tusham*; M.–*Tandi*; Assam–*Hulluch.*

Fruit—bitter, astrin., tonic, laxt., antipyr., used in piles, dropsy, diar., leprosy, biliousness, dyspep. and headache; when half ripe purg., when fully ripe astrin.

Kernel—narcotic.

Fruits contain about 17% tannin substances (I.P.C., 238; *J. Amer. pharm. Ass.*, 1951, 475; *Chem. Abstr.*, 1951, 10497).

Throughout the forests of India, below elevations of about 3,000 ft., except in the dry and arid region of Sind and Rajputana.

T. bialata Steud.
Andamans–*Chugalam*; Burm.–*Leinben.*

Bark—fairly potent cardiac stim.

Andamans.

T. catappa Linn.
H. & Bo.–*Jangli badam*; B.–*Bangla badam*; S.–*Grahadruma*; Tam.–*Nattuvadumai*; Tel.–*Natubadamu*; Mal.–*Nattubadam.*

Oil from the kernels—used as a subst. for almond oil.

Bark—astrin., mildly diur. and fairly potent cardiotonic.

Juice of young leaves — employed to prepare an ointment for leprosy, scabies and other skin diseases; internally said to be useful in colic and headache.

Extensively planted in tropical India. Indigenous in the Andamans and adjacent islands and in the Malay Peninsula, in coast forests.

T. chebula Retz.
S. & B.–*Haritaki*; H.–*Harir*; Bo.–*Hirda*; Tam.–*Kadukkai*; Tel.–*Karitaki*; Mal.–*Katukka*; Assam–*Hilikha*.

Fruit—astrin., laxt., alter., used externally as a local application to chr. ulcers and wounds and as a gargle in stomatitis; finely powdered used as a dentifrice and considered useful in carious teeth, bleeding and ulcerations of the gums.

Bark—diur., cardiotonic.

Tannin (*Ber. dtsch. chem. Ges.*, 1909, 353; 1919, 1238; *J. chem. Soc.*, 1897, 1131; *J. Soc. chem. Ind., Lond.*, 1903, No. 21); fruits contain about 30% of an astrin. substance; astringency is due to the characteristic principle chebulinic acid; also contain tannic acid (20-40%), gallic acid, resin, etc., and some purg. principle of the nature of anthraquinone (I.P.C., 155; U.S.D., 1529).

Abundant in N. India from Kangra and Kumaon to Bengal and southwards to the Deccan tablelands at 1,000-3,000 ft. and up to 6,000 ft. in Travancore; higher forests of the Bombay Ghats, Satpuras, Belgaum and Kanara.

T. citrina Roxb.
H.–*Harira*; *Assam–Hilika*; B.–*Haritaki*.

Fruit and bark—properties similar to *T. chebula*.

Assam, Mymensingh and Dacca.

T. coriacea W. & A.
Tam.–*Sadagam*; Kan.–*Banapu*.

Bark—fairly potent cardiac stim.

Madras State, Deccan, on dry hills in deciduous forests, chiefly in the Ceded Districts and up to 4,500 ft., as at Horsleykonda, mountains of the Coromandel coast and hills of Malabar.

T. myriocarpa Heurck & Muell.-Arg.
Assam–*Hollock*; Lepcha–*Sungloch*; Nep.–*Panisaj*.

Bark—fairly potent cardiac stim. and mild diur.

E. Himalayas from Nepal eastwards up to 5,000 ft. Bhutan, Abor Country and Assam.

T. oliveri Brandis
Burm.–*Than*.

Bark—diur., cardiotonic.

Upper Burma.

T. pallida Brandis
Tam.–*Vellaikkadukkay*; Tel.–*Tellakaraka*.

Bark—mildly diur.

Madras State, Deccan, Cuddapah, Kurnool, N. Arcot and Chingleput, up to 2,000 ft.

T. paniculata Roth
Bo.–*Kindal*; Kan.–*Honalu*; Mal.–*Pumarutu*; Tam.–*Pumarudu*; Tel.–*Putanallamanu*.

Juice of fresh flowers—rubbed with the root of *Cocculus villosus* used as a remedy in cholera and opium poisoning.

Bark—diur., cardiotonic.

Western regions of the Peninsula from Bombay through Kanara and Malabar to Travancore up to 2,000 ft., Coorg, Nilgiris, Anamalais, Cuddapah, and Bellary.

T. pyrifolia Kurz
Burm.–*Leinpen*.

Bark—fairly potent cardiac stim.

Pegu and Tenasserim.

T. tomentosa W. & A.
H. & P.–*Asan*; B.–*Piasal*; Bo.–*Asna*; S.–*Saradru*; Tam.–*Karuppumarudu*; Tel.–*Nelamadu*; Mal.–*Tempavu*; Assam–*Amari*.

Decoct. of bark—astrin., taken internally for atonic diar.; applied locally to ulcers.

Bark—diur., cardiotonic.

Common throughout India, except in Sind and Rajputana.

TERNSTROEMIA (*Ternstroemiaceae*)

T. japonica Thunb.
Bark and root—astrin., used in Japan as antidysen.

E. Bengal and E. Peninsula, from the Khasia Hills at 4,000-5,000 ft. to Moulamein; W. Peninsula in the Nilgiris and Ceylon.

TETRACERA (*Dilleniaceae*)

T. assa DC.; see **T. indica** Merrill

T. indica Merrill
Infusion of the plant—in the Philippines used internally for pulmonary haemor. and externally as gargle for the treatment of aphthae.

Eastern Bengal and the Eastern Peninsula from Chittagong to Singapore.

T. laevis Vahl
Mal.–*Piripul*; Tam.–*Anittichal*.

Decoct. of leaves—mixed with rice gruel given for the treatment of aphthae.

W. Peninsula, forests of the Malabar.

TEUCRIUM (*Labiatae*)

T. chamaedrys Linn.
Arab.–*Kamazariyns*.

Herb—tonic, diur., sudorific.

Essen. oil, bitter substance (*Merck's Index*, 1902, 308).

A native of Europe and certain parts of Asia.

T. polium Linn.
Arab.–*Buliun.*

Plant—in form of a liquid extract used in the treatment of fungoid diseases and absesses.

Essen. oil (*Ann. Chim. appl. Roma*, 1925, 162).

Mediterranean region and orient.

T. scordium Linn.

Herb—in Europe considered antisep., diaphor., stim.

Infusion of herb—useful in inflammatory diseases.

Amorph. bitter substance (Wehmer, II, 1029; *Rep. Pharm.*, 1831, 252).

Kashmir.

T. stocksianum Boiss.
Baluchistan–*Kalpora.*

Plant—used in cases of pain at the heart and as a cure for fever.

W. Punjab, N.W.F.P. and Baluchistan.

THALICTRUM (*Ranunculaceae*)

T. foliolosum DC.

H.–*Mamira, Pinjari*; P. & B.–*Gurbiani*; Bo.–*Mamiran*; Kash.–*Chaitra*; Kumaon–*Barmat.*

Root—tonic, aper., purg., diur., febge., good remedy for atonic dyspep., useful in convalescence after acute diseases and as application for ophthalmia.

Berberine (Dymock, Warden & Hooper, I, 35); and thalictrine (*J. Indian chem. Soc.*, 1941, 641; *Chem. Abstr.*, 1942, 5478).

Throughout the Himalayas, 5,000-8,000 ft. and Khasia Hills, 4,000-6,000 ft.

T. minus Linn.

Infusion of the leaf or decoct. of root—used by the Sutos in fever.

Inner valleys of the temperate Himalayas, and W. Tibet between 9,000-12,000 ft.

THEA (*Ternstroemiaceae*)

T. sinensis Linn.; see **Camellia sinensis** (Linn.) Kuntze

THEMEDA (*Gramineae*)

T. triandra Forsk.

Plant—said to be used medicinally in China.

Yields hydrocyanic acid.

Hotter, drier parts of India, from Upper Bengal to Travancore, ascending the Himalayas to 3,000-4,000 ft.

THEOBROMA (*Sterculiaceae*)

T. cacao Linn.

Fat from the roasted seeds—emol., used to soften and protect chapped hands or lips and for cracked nipples; used as a suppository base.

Seeds—nutritive.

Theobromine and caffeine (*Rep. Cacao Res. Trinidad*, 1938, 36; *Chem. Abstr.*, 1940, 588).

An introduced tree cultivated to some extent in Southern India as on the Malabar coast and the Nilgiri valleys.

THESPESIA (*Malvaceae*)

T. lampas Dalz. & Gibs. syn. *Hibiscus lampas* Cav.

B. & H.–*Bankapas*; Bo. & Marathi–*Ranbhendy*; Kan.–*Turuve*; Mal.–*Kattuparatti*; Tel.–*Kondapatti.*

Root and fruit—used in gonor. and syphilis.

Flowers contain quercetin and protocatechuic acid (*J. chem. Soc.*, 1909, 1855).

Himalayas up to 4,000 ft., Bengal, W. India (Konkan, Kanara, W. Ghats up to 3,000 ft.), N. Circars and Deccan.

T. populnea Soland. ex Correa

S.–*Parisha*; H. & P.–*Paraspipal*; B.–*Parash*; Bo.–*Parsipu*; Tam.–*Puvarasu*; Tel.–*Gangaravi*; Mal.–*Kallal*; Kan.–*Arasi.*

Fruit, leaves and root—applied externally to scabies, psoriasis and other skin diseases.

Root—tonic.

Bark—astrin., given internally as an alter.

Flower petals contain populnin (0·33%), populnetin (0·07%) and herbacetin (mostly as its glucd., 0·03%) (*Proc. Indian Acad. Sci.*, vol. 17A, 1943, 26; vol. 24A, 1946, 456; *Chem. Abstr.*, 1943, 4423; 1947, 3798).

Coast forests of India, largely grown as a roadside tree in tropical regions.

THEVETIA (*Apocynaceae*)

T. neriifolia Juss.; see **T. peruviana** (Pers.) Schum.

T. peruviana (Pers.) Schum. syn. *T. neriifolia* Juss.

H. & Bo.–*Pila-kaner*; B.–*Kolka-phul*; S.–*Ashvaha*; Tam.–*Pachaiyalari*; Tel.–*Pachchaganeru*; Mal.–*Pachchaarali.*

Milky juice of the tree—highly poisonous.

Kernel—acro-narcotic poison

Bark—bitter, cath., febge., useful in different kinds of intermittent fevers.

Seeds—poisononus.

Glucd. thevetin (*Pharm. J.*, 1881, 457; *Arch. Pharm., Berl.*, 1876, 385; *Bull. Sci. pharm.*, 1923, 81; *J. Indian Inst. Sci.*, 1927, 15A); another glucd. thevetoxin (*Bull. Acad. Sci.*

Unit. Prov., No. 2, 1932; *Chem. Abstr.*, 1933, 5470); thevetin is pharmacologically the most active constituent, especially on heart (*Indian J. med. Res.*,, 1933, 903); thevetoxin closely resembles thevetin in pharmacological action, but is less toxic (*Indian J. med. Res.*, 1934, 605); a fatty oil constituting more than 62% of the kernel, and four crystalline substances — a phytosterolin, ahouain, kokilphin and thevetin extracted (*J. biol. Chem.*, 1934, 321; U.S.D., 1626); nuts gave a new heteroside neriifolin (*C.R. Acad. Sci., Paris*, 1945, 645; *Chem. Abstr.*, 1945, 645); seeds contain glucosides neriifolin, acetylneriifolin, thevetin (*C.R. Acad. Sci., Paris*, 1947, 695; *Chem. Abstr.*, 1948, 1298).

Often planted in gardens in the plains of India.

THLASPI (*Cruciferae*)

T. arvense Linn.

Plant—considered astrin. in Spain.

Seeds—stim.

A weed of cultivation throughout the temperate and subalpine Himalayas, ascending to 14,000 ft.

THOMSONIA (*Araceae*)

T. nepalensis Wall.

Plant—acrid, poisonous.

Tropical Himalayas, Nepal, Sikkim, 2,000-6,000 ft., Assam and Khasia Hills 1,000-5,000 ft.

THYMUS (*Labiatae*)

T. serpyllum Linn.

H.–*Banajwain*; P.–*Marizha, Masho*; Urdu–*Hasha.*

Herb—given in weak vision, complaints of stomach and liver, suppression of urine and menstruation; in Europe considered tonic, antisp., carmin. and in infusion used in skin diseases.

Seeds—given as a vermifuge.

Oil—applied in toothache.

Essen. oil, 0·5% containing phenols *p*-cymene, terpenes, terpene alcohols (*Arch. Pharm., Berl.*, 1880, 277; 1878, 485; *J. Indian Inst. Sci.*, 1932, 78A; Geunther, III, 763).*

W. temperate Himalayas, from Kashmir to Kumaon, 5,000-13,000 ft.

T. vulgaris Linn.

Volatile oil from the plant—employed in preparations for use in the treatment of broncht. and whooping cough.

Essen. oil (*Ber., Schimmel u. Co., Lpz.*, 1925, 56; 1927, 106; *Bull. imp. Inst., Lond.*, 1924, 274; *Bull. Sci. pharm.*, 1923, 201); contains 2% essen. oil (*Bull, nat. Formul. Comm.*, 1940, 70; *Chem. Abstr.*, 1941, 1931); essen. oil from flowers and leaves contain about 45·0% of thymol and carvacrol, cymene, *l*-pinene, borneol, linalool and bornyl acetate (*Food*, 1944, 13; *Chem. Abstr.*, 1944, 1609); maximum amount of essen. oil found 2·6% (*Pharm. Ind., Berl.*, 1943, 22; *Chem. Zbl.*, 1943, 1910; *Chem. Abstr.*, 1944, 4756); oleanolic acid and its isomer ursolic acid isolated (*J. Amer. pharm. Ass.*, 1949, 122; *Chem. Abstr.*, 1950, 581).

Europe, Australia and N. Asia; cultivated.

THYSANOLAENA (*Gramineae*)

T. acarifera Nees & Arn.; see **T. procera** Mez.

T. procera Mez.

Santh.–*Karsar*; Uriya–*Phulosoro.*

Decoct. of root—used as mouth-wash in fever.

Subtropical Himalayas, from Kumaon eastwards and the Khasia Hills 4,000-5,000 ft., Bihar on the Parasnath and the Deccan.

TILIACORA (*Menispermaceae*)

T. acuminata (Lam.) Miers syn. *T. racemosa* Colebr..

H.–*Bagamushada*; B.–*Tiliakoru*; Kan.–*Kuri*; Mal.–*Vallikkanniram*; Tel.–*Tigemushidi.*

Root—rubbed between stones and mixed with water given as a drink for the cure of venomous snake-bites.

Alk. tiliacorine (*Pharm. Weekbl.*, 1922, 1381).

Bengal to Orissa and Konkan.

T. racemosa Colebr.; see **T. acuminata** (Lam.) Miers

TINOSPORA (*Menispermaceae*)

T. cordifolia (Willd.) Miers

S.–*Guduchi*; H. & B.–*Giloe, Gulancha*; Bo.–*Gulwel*; P.–*Gilo*; Tam.–*Sindal*; Tel.–*Somida*; Mal.–*Sittamrytu.*

Stem—bitter, stomch., antiper., antipyr.; powdered and made into an infusion used as alter. and aphrodis.

Starch from roots and stems—nutrient, used in chr. diar. and chr. dysen.

Juice of fresh plant—diur., useful in gonor.

Berberine, bitter substance (Dymock, Warden & Hooper, I, 56; *Bull. Inst. bot. Buitenz.*, 1902, XIV. II; *Indian J. med. Res.*, 1932, 663); stem contains 0·1% of a bitter substance, another bitter principle and a neutral substance (*J. Univ. Bombay*, 1941, 89; *Chem. Abstr.*, 1942, 3797); fresh stems gave crude giloin and giloinin (*J. sci. industr. Res.*, 1949, 115B; *Chem. Abstr.*, 1950, 1520).*

Throughout tropical India and the Andamans.

T. crispa Miers

Plant—bitter, antiper. in fevers, tonic, alter., diur., used in general debility.

Contains 0·6-0·8% of a bitter principle picroretin (*Bull. Sci. pharm.*, 1939, 73; *Chem. Abstr.*, 1939, 6525); stems contain a glucd. (*Bull. Sci. pharm.*, 1938, 7; *Chem. Abstr.*, 1938, 3089; U.S.D., 1631).

Sylhet and Assam.

T. malabarica (Lam.) Miers

S.–*Sudarsana*; B.–*Padmagaluncha*; H. & Almora–*Gurch*; Marathi–*Gulvel*; Tam.–*Potchindil.*

Plant—tonic.

Fresh leaves and stems—used in chr. rheumatism in China and Tongking.

Bengal, Khasia, Assam, Orissa, Konkan, Kanara and nearly all districts of the Madras State.

T. tomentosa (Colebr.) Miers; see **T. malabarica** (Lam.) Miers

TODDALIA (*Rutaceae*)

T. aculeata Pers.; see **T. asiatica** Lam.

T. asiatica Lam. syn. *T. aculeata* Pers.

S.–*Kanchana*; H.–*Kanj*; B.–*Kodatodali*; Bo.–*Jungli-kali-mirchi*; Tam.–*Milagaranai*; Tel.–*Kondakasinda*; Mal–*Mulakutanni*; Kan.–*Macimullu.*

Root bark—bitter, arom. tonic, stim., antiper.; given in weak infusion useful in constitutional debility and in convalescence after febrile and other exhausting diseases.

Plant—used as a febge.

Essen. oil; alk. berberine (*Ber. Schimmel u. Co., Lpz.*, 1893, April, 64; *J. chem. Soc.*, 1895, 413; *Chem. News*, 1895, 71, 207); root contains a poisonous resin which in small doses produced abortion in guinea pigs, and in larger doses paralysis and death; leaves contain a glycosidal alk., toddaline, this is a neuromuscular poison and a depressant to the heart (*Bull. Sci. pharm.*, 1931, 157); root bark also contains the alkaloids toddaline and toddalinine, toddalolactone, resins and glycosides (*Arch. Pharm., Berl.*, 1933, 477; *Indian J. med. Res.*, 1935, 765; U.S.D., 1633).*

Konkan, Deccan, S. Mahrata Country, N. Kanara, in almost all districts of the Madras State, Kumaon between 1,000 and 4,500 ft., eastwards to Bhutan, up to 5,000 ft. and Khasia Hills up to 6,000 ft.

T. bilocularis W. & A.; see **Vepris bilocularis** Engler

TORENIA (*Scrophulariaceae*)

T. asiatica Linn.

Mal.–*Kakupu*; Sing.- *Kotalawel.*

Juice of leaves—considered a cure for gonor.

South India.

TRACHELOSPERMUM (*Apocynaceae*)

T. fragrans Hook. f.

Kumaon–*Dudhi*; Lepcha–*Yokchounrik*; Nep.–*Dawarilahara.*

Plant—used as a subst. for *Alstonia scholaris* in Kumaon.

Temperate and subtropical Himalayas from Kumaon to Bhutan (not Sikkim), Assam and Cachar.

TRACHYLOBIUM (*Leguminosae*)

T. hornemannianum Hayne

Ind. Baz.–*Sandarus.*

Fossil resin—astrin., anthelm., diur., emmen., in scorpion-sting.

Tropical Africa.

TRACHYSPERMUM (*Umbelliferae*)

T. ammi (Linn.) Sprague syn. *Carum copticum* Benth. & Hook. f.; *Ptychotis ajowan* DC.

S.–*Ajamoda*; Bo.–*Ajwan*; H.–*Ajowan*; B.–*Jowan*; Tam.–*Omum*; Tel.–*Omamu*; Kan.–*Omu.*

Fruit—antisp., stomch., carmin., stim., tonic, used in diar., atonic dyspep., colic, flatulence, indign. and cholera.

Root—diur., carmin.

Fruits yield 4-6% of an essen. oil containing 45-55% thymol (*Ber. Schimmel u. Co., Lpz.*, 1903, Oct., 82; 1920, 3; 1928, 14; *J. Soc. chem. Ind., Lond.*, 1918, 604; *Bull. imp. Inst., Lond.*, 1918, 30; *Perfum. essent. Oil Rec.*, 1923, 399; U.S.D., 1311; I.P.C., 240).

Cultivated extensively in Indian gardens.

T. roxburghianum (DC.) Sprague syn. *Carum roxburghianum* Benth. & Hook. f.

H.–*Ajmuda*; B.–*Randhoni*; Marathi–*Koranza*; Kan.–*Ajmodavoma*; Tam.–*Ashamtagam*; Tel.–*Ashumadagavoman.*

Seeds—carmin., stim., stomch., useful in dyspep., hiccough, vomiting and pain in bladder.

Seeds yield essen. oil with *d*-limonene, α-terpinene, dipentene, *d*-linalool, terpineol, *dl*-piperitone, thymoquinol, thymol and a crystalline ketonic acid (*Proc. Indian Acad. Sci.*, vol. 16A, 1942, 157; *Chem. Abstr.*, 1943, 1009).

Cultivated in many Indian gardens.

TRADESCANTIA (*Commelinaceae*)

T. axillaris Linn.; see **Cyanotis axillaris** Roem. & Schult. f.

TRAGIA (*Euphorbiaceae*)

T. involucrata Linn.

S.–*Vrischikali*; H.–*Barhanta*; B.–*Bichati*; Bo.–*Kanchkuri*; Tam.–*Kannichi*; Tel.–*Dulagundi*; Mal.–*Choriyanam*; Kan.–*Turachi*.

Root—diaphor., alter., given during fever when the extremities are cold; also for pains in the legs and arms; in form of a paste used to aid the extraction of guinea-worm; in infusion given in ardent fever and in itching of the skin; forms the basis of an external application in leprosy.

Fruit—rubbed over the head with a little water useful in baldness.

Throughout India from the Punjab and outer Himalayan ranges eastwards to Assam and southwards to Travancore.

TRAGOPOGON (*Compositae*)

T. porrifolius Linn.

Roots—specific in obstructions of the gall and the jaundice.

Found in cultivated places at Simla and W. Tibet.

T. pratensis Linn.

Decoct. of root—given for heart burn, loss of appetite, disorders of the breast and liver.

As, 0·007 mg. in 100 g. plant (*C.R. Acad. Sci., Paris*, 1912, 893; *Chem. Zbl.*, 1912, I, 1730; *Mh. Chem.*, 1926, 691).

Western Himalayas and Western Tibet, 12,000-14,000 ft.

TRAPA (*Onagraceae*)

T. bispinosa Roxb.

B.–*Paniphal*; S.–*Shringata*; Kash.–*Gaunri*; H. & Tam.–*Singhara*; Bo. & Gujarat – *Shingoda*; Tel. – *Kubyakam*; Mal.–*Karimpolam*.

Nuts—cooling, useful in diar. and bilious affections.

Throughout India.

TREMA (*Ulmaceae*)

T. orientalis Blume syn. *Celtis orientalis* Linn.

S.–*Jivanti*; B.–*Jibon*; Bo.–*Khargul*; Assam – *Jupong*; Mal. – *Malantotali*; Tel.–*Morali*; Tam.–*Muvnai*.

Plant—used in epilepsy.

More or less throughout India.

TREWIA (*Euphorbiaceae*)

T. nudiflora Linn.

S. & H.–*Pindara*; B.–*Pitali*; Bo.–*Petari*; Tam.–*Attarasu*; Tel.–*Eruponaku*; Mal.–*Malankumil*; Kumaon–*Khamara*.

Plant—used for the removal of swelling, bile and phlegm.

Decoct. of root—given to relieve flatulence and applied locally in gouty and rheum. affections.

Alk. (Dymock, Warden & Hooper, III, 295).*

Throughout the hotter parts of India from Kumaon southwards and eastwards to Assam.

TRIANTHEMA (*Ficoidaceae*)

T. decandra Linn.

S.–*Punarnavi*; H. & B.–*Gadabani*; Tam.–*Vallaisharunnai*; Tel.–*Tellagalijeru*; Kan.–*Gaijasoppu*; Dec.–*Bhiskupra*.

Root—aper., useful in hepatitis, asthma and suppression of the menses; ground up with milk and given internally considered specific in orchitis.

Decoct. of root bark—aper.

Juice of leaves—dropped into the nostrils to relieve one-sided headache.

S. Mahrata Country, Deccan, Carnatic, on dry-soil lands, a roadside weed.

T. monogyna Linn.; see **T. portulacastrum** Linn.

T. pentandra Linn.

P.–*Itsit*; Bo.–*Bishkapra*.

Plant—used as astrin. in abdominal diseases, abortif., used as a cure for pain in the bladder and for snake-bite.

Punjab, Sind, W. Rajputana, Konkan, Deccan, S. Mahrata Country and parts of the Uttar Pradesh.

T. portulacastrum Linn. syn. *T. monogyna* Linn.

H.–*Lalsabuni*; Bo. & P.–*Bishkapra*; Tam.–*Sharunnai*; Tel.–*Galijeru*; Kan.–Marathi–*Muchchugoni*; S.–*Punarnavi*; Marathi–*Pundharighentuli*.

Leaves of the white variety—diur., used in oedema and dropsy due to various causes; in cases of ascites especially due to early liver, peritoneal and kidney conditions.

Powdered root—bitter, cath., abortif., used in amenor.

Saponin (Dymock, Warden & Hooper, II, 103); alk. punarnavine up to 0·01% calculated on air-dry sample (I.P.C., 212; *Indian J. med. Res.*, 1940, 475); yields a new alk. $C_{33}H_{38}O_{6}N_{3}$ (*Quart. J. Pharm.*, 1947, 38; *Chem. Abstr.*, 1947, 7671).

Throughout India.

TRIBULUS (*Zygophyllaceae*)

T. alatus Del.

H.–*Gokhuri-kalan*; P.–*Bhakra, Hasak*; Bo.–*Trikundri*.

Fruits—used for same purposes as of *T. terrestris*.

Sind, Cutch, Desert of W. Rajputana and Baluchistan.

T. terrestris Linn.

S.–*Gokshura*; H.–*Chotagokhru*; B.–*Gokhru*; Bo.–*Lahanagokhru*; Tam.–*Nerunji*; Tel.–*Palleru*; Kan.–*Negalu*; Mal.–*Neringil*; P.–*Bhakhra*.

Fruits—cooling, diur., tonic, aphrodis., used in painful micturition, calculus affections, urinary discharges and impotence; in form of infusion useful as a diur. in gout, kidney diseases and gravel.

Fruits contain traces (0·001%) of an alk., a fixed oil, a small quantity of essen. oil, resins and nitrates (I.P.C., 243; *Indian J. med. Res.*, 1929, 377; *Bull. Acad. Sci. Unit. Prov.*, 1933, 163; *Chem. Abstr.*, 1933, 4274).*

Throughout India and up to 11,000 ft. in Kashmir.

TRICALYSIA (*Rubiaceae*)

T. sphaerocarpa Gamble syn. *Diplospora sphaerocarpa* Hook. f.

Roasted seeds—taste and smell like coffee.

Alk. like caffeine.

W. Peninsula or the Ghats from Bombay southwards.

TRICHILIA (*Meliaceae*)

T. trifoliata Wall.; see **Walsura piscidia** Roxb.

TRICHODESMA (*Boraginaceae*)

T. africanum R. Br.

Bo.–*Paburpanee*.

Leaves—emol., alter., diur.

Punjab, Sind and Baluchistan.

T. indicum R. Br.

H.–*Chhota kulpha*; B.–*Choto kulpa*; Bo. & Marathi–*Lahana-kalpa*; S.–*Surasa*; Tam.–*Kalhudaitumbai*; Tel.–*Guvvagutti*; Kash.–*Ratisurkh*.

Plant—diur., used as an emol. poultice.

Leaves—in a cold infusion considered depurative.

Root—pounded and made into a paste applied to reduce swellings, particularly of the joints; pounded with water given as a drink to children in dysen.

Throughout the greater part of India in the plains and Baluchistan.

T. zeylanicum R. Br.

S.–*Jhingi*; Marathi–*Jalashirasi*; H.–*Hetemuria*.

Leaves—emol., diur.

Gujarat, Konkan, Deccan, S. Mahrata Country and all dry districts of the Madras State.

TRICHOLEPIS (*Compositae*)

T. angustifolia DC.

Plant—bitter tonic, diur., used in cough.

W. Peninsula, Kanara, Mangalore and Travancore.

T. glaberrima DC.

Marathi, Kan., S. & H.–*Brahmadandi*; B.–*Vamanadandi*; Bo.–*Motabor*.

Plant—used in leucoderma and skin diseases; considered nervine tonic and aphrodis. and used in seminal debility.

W. Rajputana, Mt. Abu, Madhya Bharat, Konkan, Deccan, S. Mahrata Country, W. Ghats in the Bombay State, S. Kanara, Coorg and the hills of Mysore.

T. procumbens Wight; see **Amberboa divaricata** Kuntze

TRICHOSANTHES (*Cucurbitaceae*)

T. anguina Linn.

S. & P.–*Chichinda*; H.–*Chachinga*; B.–*Chichinga*; Bo.–*Pandolu*; Kan.–*Padavala*; M.–*Pudel*; Tel.–*Lingapotla*.

Seeds—cooling.

Fruit — considered purg., anthelm. and emetic in the Philippine Islands.*

Extensively cultivated throughout the hotter parts of India.

T. bracteata (Lam.) Voigt syn. *T. palmata* Roxb.

S.–*Mahakala*; H.–*Lal-indrayan*; B.–*Makal*; Bo.–*Kaundal*; Tam.–*Korattai*; Tel.–*Avaduta*; Mal.–*Kakatonti*; Kan.–*Avagudehannu*.

Fruit—smoked as a cure for asthma; hydragogue cath.; the oil obtained by boiling it in coconut or gingelly oil when applied to the scalp, said to cure hemicrania and ozoena.

Root—used in lung diseases of cattle; with an equal portion of Colocynth root, rubbed into a paste applied to carbuncles; boiled with mustard oil used for headache.

Bitter substance (Dymock, Warden & Hooper, II, 72; *Pharm. J.*, 1890, 169; *Pharm. Zentralh.*, 1892, 944).

Throughout India, ascending to 5,000 ft. on the Himalayas.

T. cordata Roxb.

B.–*Bhumikumra, Patol*.

Root—used as a tonic; dried and powdered given in enlargements of the spleen and liver; fresh and mixed with oil forms an application for leprous ulcers.

Dried flowers—given as a stim.

Upper Gangetic Plain, along the base of the Himalayas from Nepal eastwards and Bengal.

T. cucumerina Linn.
S.-*Patola*; H.-*Jangli-chichonda*; B.-*Banpatol*; Bo.-*Ranparul*; Tam.-*Pudol*; Tel.-*Chetipotla*; Mal.-*Katupatolam*; Kan.-*Kiripodla*; P.-*Mohakri*.

Plant—general and cardiac tonic, alter., antipyr., febge., useful for boils and intestinal worms.

Fruit—bitter, laxt.

Juice of leaves—emetic.

Juice of root—cath.

Leaves and stems—used in decoct. for bilious disorders, skin diseases and as emmen.

Seeds—antifebrile, anthelm., good in disorder of the stomach.

Throughout India.

T. dioica Roxb.
S.-*Patola*; H.-*Parvar, Parval*; B.-*Potol*; Bo. & Gujarati-*Potala*; Tam.-*Kombuppudalai*; Tel.-*Kommupotla*; Mal.-*Patolam*.

Leaves—made into a decoct. with equal parts of coriander given in bilious fever as a febge. and laxt.

Root—hydragogue cath., tonic and febge.

Fruit—used as a remedy for spermatorrhoea.

Fresh juice of unripe fruit—used as a cooling and laxt. adjunct to alter. medicines.

Roots contain an amorph. saponin, hentriacontane, a phytosterol a non-nitrogenous bitter principle, glucosidic in nature and resembling colocynth, small amount of essen. oil, little fixed oil and traces of tannins (*Patna Univ. J.*, 1945, 56; *Chem. Abstr.*, 1947, 3174).

Throughout the plains of N. India, extending to Assam and E. Bengal.

T. nervifolia Linn.
H.-*Parvar*; B.-*Potol*; Tam.-*Kombuppudalai*; Tel.-*Kommupotla*; Mal.-*Patolam*; Kan.-*Podlakayi*.

Plant—bitter tonic, febge.

Root—purg.

Konkan, Coorg, Nilgiris and Pulneys.

T. palmata Roxb.; see **T. bracteata** (Lam.) Voigt

T. wallichiana Wight
Ripe fruit—bitter, pounded and mixed with opium used as a poison in Kelantan.

Sikkim, Khasia Hills, 2,000-6,000 ft.

TRIFOLIUM (*Leguminosae*)

T. indicum Linn.; see **Melilotus indica** (Linn.) All.

T. pratense Linn.
P.-*Trepatra*.

Dried flowers—antisp., expect., employed in whooping cough and broncht. and in anti-asthmatic cigarettes; in form of ointment used as a local application to ulcers.

Essen. oil, glucd. trifolin and isotrifolin in the blossoms (*J. chem. Soc.*, 1910, 231); As, 0·012 mg. in 100 g. fresh plant and 0·037 mg. in dry (*C.R. Acad. Sci., Paris*, 1914, 268; *Chem. Zbl.*, 1914, II, 885); HCN glucd. (*N.Z. J. Sci. Tech.*, 1933, 222; *Chem. Zbl.*, 1934, I, 1661); gave trifolin and trifolitin (*J. pharm. Soc. Japan*, 1943, 444; *Chem. Abstr.*, 1950, 7315); another glucd. trifolianol (*J. chem. Soc.*, 1913, 399, 1022; U.S.D., 1635).

Kashmir to Garhwal, 4,000-8,000 ft.

T. repens Linn.
P.-*Shaftal*.

Plant—poisonous to horses.

Glucd. (*Chem. News*, 1911, 276; *Pharm. J.*, 1911, 881); contains cyanogenetic glucd. lotaustralin and pinitol (*J. Soc. chem. Ind., Lond.*, 1938, 162; *Chem. Abstr.*, 1938, 6253.).

Temperate and alpine Himalayas, ascending to 20,000 ft. and the Nilgiris.

TRIGLOCHIN (*Naiadaceae*)

T. maritima Linn.
HCN glucd. (*Pharm. Weekbl.*, 1908, 1167; 1913, 1295).

Temperate and alpine Himalayas and Western Tibet, 12,000-16,000 ft.

T. palustris Linn.
HCN (*Pharm. Weekbl.*, 1908, 1167).

Temperate and alpine Himalayas and Western Tibet, 8,000-15,000 ft.

TRIGONELLA (*Leguminosae*)

T. corniculata Linn.
Pers.-*Tirir*; S.-*Malya*; Urdu-*Pirang*.

Fruit—bitter, astrin., styptic; applied to swellings and bruises.

Bengal and Kumaon to Kashmir, 5,000-12,000 ft.

T. foenum-graecum Linn.
H., S., P., B. & Bo.-*Methi*; Tam.-*Vendayam*; Tel.-*Mentulu*; Mal.-*Ventayam*; Kan.-*Menthya*.

Seeds—carmin., tonic, aphrodis.; an infusion given to small-pox patients as a cooling drink; toasted and then infused, used for dysen.

Leaves—used both internally and externally for their cooling properties.

Seeds contain alk. trigonelline and choline (*Ber. dtsch. chem. Ges.*, 1885, 2518; *Arch. Pharm., Berl.*, 1887, 985; *Hoppe-Seyl. Z.*, 1932, 75; *Chem. Zbl.*, 1932, II, 1640); essen. oil (*Pharm. Ztg, Berl.*, 1903, 58); saponin (*J. Pharm. Chim., Paris*, 1919, 86; *C.R. Acad. Sci., Paris*, 1926, 994; *Jb. wiss. Bot.*, 1937, 710; *Chem. Abstr.*, 1938, 9177); prolamin (*Biochem. J.*, 1932, 1643; *Chem. Zbl.*,1933, II, 2838); trigonelline has highly toxic action on neuromuscular preparations (*Bull. Acad. Med. Belg.*, 1939, 241; *Chem. Abstr.*, 1940, 4805); fixed and volatile oils, mucil., bitter extractive and a yellow colouring substance (U.S.D., 1635); air-dried seeds contain 0·38% trigonelline and 3 mg.% nicotinic acid (*Arch. Pharm., Berl.*, 1943, 378; *Chem. Abstr.*, 1945, 5040).*

Punjab and Kashmir. Cultivated in many parts of India.

T. occulta Delile

Seeds—used in dysenteric affections.

Upper Gangetic Plain, Sind, Deccan.

T. polycerata Linn.

Seeds—given in diarrhoeic conditions.

Punjab Plain and W. Himalayas up to 6,000 ft.

T. uncata Boiss.

Ind. Baz.–*Iktil-el-malik*.

Narcotic, paralyses heart.*

Persia and Afghanistan.

TRITICUM (*Gramineae*)

T. aestivum Linn. syn. *T. sativum* Lam.

S.–*Godhuma*; H.–*Gehun, Giun*; P.–*Kanak*; B.–*Gam*; Bo.–*Gahu*; Mal.– *Gendum*; Tel.–*Godumulu*; Tam.–*Godumai*.

Seeds—cooling, tonic, fattening; increase appetite and relish for food; useful medicine in general disorders of health.

As_2O_3, 0·03 mg. in 1 kg. grain (*Pharm. Weekbl.*, 1921, 1482; *Chem. Zbl.*, 1922, II, 113; *J. Amer. chem. Soc.*, 1919, 1212; *Biochem. Z.*, 1927, 113; *J. biol. Chem.*, 1927, 781); fresh plant oxalic acid 0·02% (*J. Amer. chem. Soc.*, 1931, 1040); grains contain Mg, Mn, Zn, Fe, Cu (*C.R. Acad. Sci., Paris.*, 1932, 1527; *Chem. Zbl.*, 1932, II, 887).

Widely cultivated in many parts of N. India and the Deccan Peninsula, especially in the north-west, and up to 13,000 ft. in the Himalayas and Tibet.

T. repens Linn.; see **Agropyron repens** Beauv.

T. sativum Lam.; see **T. aestivum** Linn.

TRIUMFETTA (*Tiliaceae*)

T. bartramia Linn.

H.–*Chikti*; B.–*Bunokra*; M.–*Adeiyotti*; Marathi–*Jhinjhira*; S.–*Jhinjhirita*; Tam.–*Puramutti*; Tel.–*Chirusitrika*.

Leaves, flowers and fruits—mucilaginous, demulc., astrin., given in gonor.

Root—bitter, diur.; a hot infusion is taken to facilitate childbirth or to hasten the inception of parturition when it is delayed.

Bark and fresh leaves—used in diar. and dysen.

Throughout tropical and subtropical India and ascending to 4,000 ft. in the Himalayas.

T. rhomboidea Jacq.; see **T. bartramia** Linn.

T. semitriloba Linn.

Leaves and fruits—mucilaginous, astrin.

Decoct. of herb or fruit—used as an injection in inveterate gonor. in Brazil.

Tenasserim.

TURRAEA (*Meliaceae*)

T. villosa Benn.

Bo.–*Kapurbhendi*.

Root—applied to fistulas and administered internally in leprosy.

Bombay State: Gujarat, Konkan, W. Ghats, N. Kanara; Madras State: W. Ghats in the Anamalai Hills up to 4,000 ft. and hills of Travancore.

TUSSILAGO (*Compositae*)

T. farfara Linn.

P.–*Watpan*; H.–*Watapana*; Urdu–*Fanjiwun*.

Roots and leaves—used in chest complaints, chr. broncht. and asthma.

Leaves—demulc., smoked in pulmonary complaints.

Leaves contain bitter glucd. (*Amer. J. Pharm.*, 1887, 340; *Arch. Pharm., Berl.*, 1924, 281; *Pharm. Mh.*, 1924, 25); leaves contain mucil. (U.S.D., 1450).

W. Himalayas, from Kashmir to Kumaon, 6,000-11,000 ft.

TYLOPHORA (*Asclepiadaceae*)

T. asthmatica W. & A.; see **T. indica** (Burm. f.) Merr.

T. fasciculata Ham. ex Wight

Bo.–*Bhuidari, Bhindoli*.

Juice of root—given with milk as a tonic.

Leaves—pounded and used as an application to unhealthy ulcers and wounds to induce healthy granulation.

Plant—used as a poison for rats and vermin.

Leaves contain alk. (Dymock, Warden & Hooper, II, 441).

Upper Gangetic Plain, eastwards to the Khasia Hills and through Madhya Bharat and Konkan southwards to N. Circars, the Deccan and Carnatic.

T. indica (Burm. f.) Merr. syn. *T. asthmatica* W. & A.

H. & B.–*Antamul*; Bo.–*Anthamul*; Mal.–*Vallippala*; Tel.–*Vettipala*; Tam.–*Nayppalai*.

Plant—used as a subst. for Ipecacuanha.

Leaves—emetic, diaphor., expect., useful in overloaded states of the stomach and other cases requiring the use of emetics.

Contains 2 alks. tylophorine and tylophorinine (*Bull. Pharm.*, 1891, 6; *Merck's Index*, 1927, 471; *Indian J. med. Res.*, 1935, 443; 1935, 263; U.S.D., 1636); dry plant yields 0·44% total alks. containing 0·1% tylophorine; also contains a substance with emetic properties; (*Arch. Pharm., Berl.*, 1937, 236; *Chem. Abstr.*, 1937, 5509); air-dried root yields 0·18% of a colourless crystalline solid; total yield of essen. oil 0·26% (*Proc. Indian Acad. Sci.*, vol. 28A, 1948, 173; *Chem. Abstr.*, 1949, 3567).*

N. and E. Bengal, Assam, Cachar, Orissa, Konkan, Deccan, Kanara and all plain districts in the Madras State and up to 3,000 ft. in the hilly country.

T. tenuis Blume

M.–*Nanjaruppan*.

Plant—used as a cure for perspiration, urticaria and small-pox; an infusion considered alexipharmac; decoct. antid. to arsenic poison and snake poison.

W. Coast and Ghats of Madras State.

TYPHA (*Typhaceae*)

T. angustata Bory & Chaub.

Tel.–*Dabbujambu*, *Jambu*.

Rootstock—astrin., diur.

More or less throughout India.

T. elephantina Roxb.

B.–*Hogla*; Bo.–*Ramban*; Kash.–*Pitz*; P.–*Boj*; H.–*Pater*; S.–*Gundra*; Tam.–*Chambu*; Tel.–*Jammugaddi*; Kan.– *Jambuhullu*.

Down of the ripe fruit—used as an application to wounds and ulcers, which acts like medicated cotton wool.

Rootstock—astrin., diur., employed in measles, dysen. and gonor.

Marshes from N.W. India to Assam and southwards, Indus Delta.

T. laxmanni Lepech.

Stamens and pollen—used as astrin. and styptic.

Kashmir, 9,000 ft.

TYPHONIUM (*Araceae*)

T. trilobatum (Linn.) Schott

B.–*Chetkochu*; Mal.–*Chena*; Tam.–*Karunaikkilhangw*; Tel.–*Kandagadde*.

Root—stim., used for piles; eaten with bananas cures stomach complaints; applied externally to the bite of venomous snakes and at the same time given internally.

Orissa, Chota Nagpur, Central and E. Bengal, Chittagong, Assam and E. Coast of the Madras State.

UNCARIA (*Rubiaceae*)

U. gambir Roxb.

S.–*Khadir*; H.–*Kathkutha*; B.–*Khayer*; Bo.–*Chinaikatha*; Tel.–*Ankudukurra*.

Dried aqueous extract prepared from the leaves and twigs—useful astrin., used in diar.

Catechutannic acid, catechin (*J. chem. Soc.*, 1897, 1131; 1902, 1160; 1905, 398; *J. Amer. chem. Soc.*, 1931, 1500); astrin. properties are due to the presence of catechutannic acid (U.S.D., 488).*

Malay Peninsula. Borneo and Sumatra.

UNONA (*Annonaceae*)

U. desmos Raeusch.; see **Desmos cochinchinensis** Lour.

U. discolor Vahl; see **Desmos chinensis** Lour.

U. narum Dun.; see **Uvaria narum** Bl.

URARIA (*Leguminosae*)

U. hamosa Wall.

Decoct. of leaves—used with other drugs in cases of fever.

Upper Gangetic Plain, eastwards to Bengal, ascending in Sikkim to 4,000 ft.

U. lagopoides DC.

S.–*Prishniparni*; H.–*Pithavana*; B.–*Chakulia*; Bo.–*Dowla*; Mal.–*Orila*; Tel.–*Kolaponna*.

Plant—considered alter., tonic and anti-catarrhal; given with milk to women in the seventh month of pregnancy to produce abortion.

Tropical zone, Nepal, Chota Nagpur and Bengal to Ava (Burma).

U. picta Desv.

H.–*Dabra*; B.–*Sankarjata*; Bo.–*Prisniparni*; S.–*Chitraparni*; Tam.–*Sittirappaladai*.

Fruit—applied to the sore mouths of children.

Plant—considered antid. to snake-bite.

Throughout India.

URENA (*Malvaceae*)

U. lobata Linn.

H.–*Bachata*; B.–*Bonokra*; Bo. & Marathi–*Vanabendha*; S.–*Vanabhenda*; Tam.–*Ottatti*; Tel.–*Peddabenda*; Mal.–*Udiram*; Kan.–*Otte*.

Root—diur., used as an external remedy for rheumatism.

Seeds contain urease (*Biochem. J.*, 1914, 449).

Generally distributed over the hotter parts of India. A weed of waste places, forest-clearings and roadsides. Common in the bamboo and mango clumps of Bengal.

U. repanda Roxb.

Santh.–*Sikuar*; Uriya–*Sikhini*.

Root and bark—considered a cure for hydrophobia.

Punjab, Dehra Dun, Madhya Pradesh, N. Circars, Ganjam in Sal forests.

U. sinuata Linn.

H.–*Lotloti*; B.–*Kunjia*; Bo.–*Taphote*; Tel.–*Piliyamankena*; Tam.–*Ottuttutti*; Mal.–*Uram*.

Root—applied externally for lumbago.

Generally distributed over the hotter parts of India.

URGINEA (*Liliaceae*)

U. coromandeliana Hook. f.

Bulb—used as a subst. for squill.

Coromandel Coast.

U. indica Kunth

S.–*Vana-palandam*; Kumaon–*Ghesuwa*; H. & B.–*Jangli-piyaz*; Bo.–*Jangli-kanda*; Tam.–*Narivengayam*; Tel.–*Nakkavalligadda*; Mal.–*Kanthanga*.

Bulb—cardiac stim., diur., in form of a syrup useful as an expect. in bronchial catarrh and chr. broncht.; medicinal properties are similar to the European squill obtained from *U. maritima*.

Fresh squill yields at least two glycosides, scillaren-A which is crystalline and scillaren-B which is amorphous (I.P.C., 247).

W. Himalayas, Bihar, Chota Nagpur, Konkan and Coromandel Coast.

URTICA (*Urticaceae*)

U. dioica Linn.

H. & P.–*Bichu*.

Juice of plant—used as an external irrit.

Root—diur.

Decoct. of plant—diur., astrin., emmen., anthelm., used in nephritis, haematuria, menor., consumption and jaundice.

Lecithin (*Hoppe-Seyl. Z.*, 1919, 165; *Pharm. Zentralh.*, 1889, 609; Wehmer, I, 253).

N.W. Himalayas, from Kashmir and the Salt Range to Simla, 8,000-10,700 ft.

U. parviflora Roxb.

M.–*Anachoriyanom*; Urdu–*Bichhu*.

Decoct. of plant—given in fevers.

Temperate Himalayas from Kashmir to Mishmi at 5,000-12,000 ft., and Nilgiris.

U. pilulifera Linn.

Plant—used as a subst. for *U. dioica* in Spain.

Occurs occasionally near houses in Simla and elsewhere.

UTRICULARIA (*Lentibulariaceae*)

U. bifida Linn.

Santh.–*Arakjhawar*.

Plant—used in urinary diseases.

Throughout India.

UVARIA (*Annonaceae*)

U. dulcis Dunal

Malay–*Pisang-pisang hitam*.

Root bark—astrin., stim., alter.

Burma and Malay Peninsula.

U. narum Bl.

Mal.–*Narampanal*; Tam.–*Pulichan*; Kan.–*Kariballi*.

Roots and the oil from the roots—used medicinally in various diseases; arom.

Bombay State: Konkan, N. Kanara; Madras State: Forests of the W. Ghats from S. Kanara to Travancore, and hills of Salem up to 4,000 ft.

VALERIANA (*Valerianaceae*)

V. brunoniana W. & A.; see **V. leschenaultii** DC.

V. hardwickii Wall.

H. & B.–*Taggar*; Bo.–*Taggar-ganthoda*; P.–*Nahani*; Kumaon–*Asarun*.

Root—properties similar to those of *V. wallichi*.

Essen. oil.

Temperate Himalayas, from Kashmir to Bhutan, 4,000-12,000 ft. and Khasia Hills, 4,000-6,000 ft.

V. jatamansi DC.; see **Nardostachys jatamansi** DC.

V. leschenaultii DC.

Roots—used as a subst. for those of *V. officinalis*.

Root contains 0·09% essen. oil (Wehmer, II, 1193).

Nilgiris, Mysore and Coorg.

V. officinalis Linn.

Bo. & Marathi–*Kalavala*; Ajmere–*Billilotan*.

Root—stim., carmin., antisp., useful in hysteria, epilepsy, chorea, shell shock and neurosis.

Essen. oil, glucd., alks. (*Apothekerztg, Berl.*, 1891, 21; *C.R. Acad. Sci., Paris*, 1907, 154; 1921, 1059; 1893, 1096; 1935, 780; *Ber. Schimmel u. Co., Lpz.*, 1918, 7; *J. Amer. chem. Soc.*, 1912, 67; Dymock, Warden & Hooper, II, 237; *J. pharm. Soc. Japan*, 1907, 355; 1926, 75); rhizome and root contain essen. oil 0·83% (*Pharm. Zentralh.*, 1933, 134; *Chem. Zbl.*, 1933, I, 3101); volatile base (*C.R. Acad. Sci. U.R.S.S.*, 1934, 119; *Chem. Zbl.*, 1934, II, 261); fresh roots contain alks. chatinine and valerine and a water-soluble base having physiological activity (*Pharm. J.*, 1939, 299; *Chem. Abstr.*, 1939, 8921; I.P.C., 248); fresh root is 3 times as effective as that dried at 40°; temperature over 82° destroys the active principle (*Acta polon. pharm.*, 1939, 57; *Chem. Zbl.*, 1939, 906; *Chem. Abstr.*, 1941, 3716).

Kashmir.

V. wallichii DC.

S.–*Tagara*; H. & B.–*Mushkbala, Tagar*; Bo.–*Tagar-ganthoda*; P.–*Balamushk*; Urdu–*Rishawala*.

Root—medicinal properties similar to *V. officinalis* for which it is a good subst.

Essen. oil (*Pharm. J.*, 1925, 122; *Ber. Schimmel u. Co., Lpz.*, 1922, 8; Wehmer, II, 1192); roots yield 0·5-2·12% of the volatile oil; fresh roots contain an appreciable quantity of a water-soluble physiologically active base (I.P.C., 250).

Temperate Himalayas, from Kashmir to Bhutan, 10,000 ft. and Khasia Hills, 4,000-6,000 ft.

VALLARIS (*Apocynaceae*)

V. heynei Spreng.; see **V. solanacea** O. Ktze.

V. solanacea O. Ktze.

S.–*Bhadravalli*; H.–*Ramsar*; B.–*Haparmali*; Tel.–*Puttapodarayarala*; Uriya–*Haporomoli*.

Milky juice—irrit., applied to old wounds and sores.

More or less throughout India, commonly cultivated.

VALLISNERIA (*Hydrocharitaceae*)

V. spiralis Linn.

H.–*Sawala*; Tel.–*Punatsu*; Gujarati–*Jalasarpolian*.

Plant—stomch., used in leucor.

Throughout India.

VANDA (*Orchidaceae*)

V. roxburghii R. Br. syn. *V. tessellata* Hook. ex G. Don.

S., H., B. & Bo.–*Rasna*; Kan.–*Bandanike*; Tel.–*Kanapabadanika*.

Root—useful in rheumatism and allied disorders; enters into the composition of various medicated oils for external application in diseases of the nervous system and rheumatism.

Leaves—made into a paste by pounding applied to the body during fever; the juice is introduced into the aural meatus as a remedy for otitis media.

Whole plant contains alk. (Dymock, Warden & Hooper, III, 394); a glucd. which stimulates all organs having autonomic cholinergic nerve supply at dose levels 0·3 to 1·0 mg./kg. (*Indian J. med. Res.*, 1946, 253; *Chem. Abstr.*, 1947, 7530).*

Bengal, Chota Nagpur, Bihar, Madhya Pradesh, W. Peninsula and Travancore.

V. spathulata Spreng.

Mal.–*Ponnamponmaraiva*.

Flowers—reduced to powder given in consumption, asthma and mania.

Juice of plant—given to temper the bile and abate phrenzy.

W. Peninsula from Malabar to Travancore.

V. tessellata Hook. ex G. Don; see **V. roxburghii** R. Br.

VANDELLIA (*Scrophulariaceae*)

V. erecta Benth.; see **V. pyxidaria** Maxim.

V. pedunculata Benth.

Bo. & Marathi–*Gadaguel*.

Plant—used for the same purpose as *V. pyxidaria*.

More or less throughout India, in damp places.

V. pyxidaria Maxim.

Bo. & Marathi–*Vakapushpi*.

Plant—used in a *ghrita* as a remedy for gonor.

Juice—given to children who pass green-coloured stools.

Himalayas from Kashmir to Assam, common in Bengal, also in Central and S. India.

VANGUERIA (*Rubiaceae*)

V. spinosa Roxb.

S.–*Pindituka*; H. & B.–*Muyuna*; Bo.–*Atu*; Kan.–*Mullakare*; Tam.–*Manakkarai*; Tel.–*Visikilamu*.

Fruit—refrig., cholag., strengthening and an expellant of phlegm and bile.

Powdered leaves—considered useful for diphtheria.

N. Bengal, Konkan, Deccan, N. Kanara and most plain districts of the Madras State.

VATERIA (*Dipterocarpaceae*)

V. indica Linn.

S.–*Ajakarna*; H.–*Sageddamar*, *Sandras*; B.–*Chundrus*; Bo.–*Ral*; Kan.–*Rala*; Mal.–*Payani*; Tam.–*Kundurukkam*; Tel.–*Telladamaru*.

Fatty oil from fruit—used as a local application in chr. rheumatism.

Damar resin (*J. Soc. chem. Ind., Lond.*, 1898, 991).

Western India: From N. Kanara to Travancore up to 3,500 or 4,000 ft., chiefly in evergreen forests, but occasionally along rivers in deciduous forests. In Coorg both in the Ghat forests and east of the Ghats up to 3,500 ft., in the latter locality always in evergreen forest.

VENTILAGO (*Rhamnaceae*)

V. calyculata Tulasne

B.–*Ruktupita*; Bo.–*Kanyel*; H.–*Raidhani*; Kumaon–*Kalibel*; Kan.–*Kuriyadi*; Tel.–*Errashiratalatige*; Uriya–*Pittoli*.

Juice of bark and young shoots—applied to the body as a remedy for pains which accompany malarial fever.

Throughout the hotter parts of India, from the Kumaon Himalayas and Nepal to Bhutan, Sylhet and throughout the Western Peninsula.

V. madraspatana Gaertn.

S.–*Raktavalli*; H.–*Pitti*; B.–*Raktapita*; Bo.–*Lokhandi*; Kan.–*Pappali*; Tam.–*Pappili*; Tel.–*Ettasurugudu*.

Powdered root bark—carmin., stomch., stim., useful in atonic dyspep., debility and in mild fever.

Powdered bark—mixed with gingelly oil used as an application for skin diseases and itch.

Root bark contains trihydroxymethyl-anthranolmonomethyl ether; emodinmonomethyl ether (*J. chem. Soc.*, 1894, 943).*

Bombay State: Konkan, Deccan, W. Ghats, S. Mahrata Country; Madras State: Deccan forests from Kistna to Mysore and Coimbatore.

VEPRIS (*Rutaceae*)

V. bilocularis Engler

S.–*Krishnaaguru*; M.–*Devadarom*.

Wood—boiled in oil used in eye and ear diseases, rheumatism and asthma.

Decoct. of root—given in biliousness.

N. Kanara, forests of Malabar, Anamalais and Travancore up to 4,000 ft.

VERBASCUM (*Scrophulariaceae*)

V. thapsus Linn.

P.–*Bantamaku*; Urdu–*Jang-litamak*; H.–*Gidar-tamaku*.

Herb—employed for treatment of asthma and other pulmonary complaints.

Leaves—warmed and rubbed with oil, used as an application to inflamed parts.

Leaves, flowers and roots—demulc., astrin. and pectoral.

Leaves and flowers—useful in pulmonary diseases, coughs, consumption, bleeding of the lungs and bowels.

Seeds—aphrodis., narcotic., used as a fish poison.

Root—febge.

Leaves contain bitter substance, saponins (*Amer. J. Pharm.*, 1890, 71; *Arch. Pharm., Berl.*, 1902, 57; 1905, 247; *Pharm. Zentralh.*, 1925, 4; *Pharm. Weekbl.*, 1918, 49; U.S.D., 1644); α-crocetin (*Mh. Chem.*, 1932, 341; *Chem. Zbl.*, 1932, II, 75; *Mh. Chem.*, 1932, 305; *Chem. Zbl.*, 1932, II, 2267).*

Temperate Himalayas 5,000-12,000 ft., from Kashmir to Bhutan, and also occurs in W. Ghats, Nilgiris in the neighbourhood of Ootacamund.

VERBENA (*Verbenaceae*)

V. officinalis Linn.

P.–*Karaita*, *Pamukh*; Urdu–*Faristariun*.

Fresh leaves—used as a febge., tonic and as a rubft. in rheumatism and diseases of the joints.

Plant—useful in nerve complaints and amenor.; used as a depurative and febge.

Root—considered as a remedy for scrofula and snake-bite.

Entire plant contains glucd. verbenalin (*J. Pharm. Chim., Paris*, 1908, 49; *Arch. Pharm., Berl.*, 1908, 272; 1935, 357); aerial parts contain a verbenaloside (*J. Pharm. Chim., Paris*, 1937, 5; *Chem. Abstr.*, 1937, 8829); contains glucosides verbenalin and verbenin; in frogs verbenin acts upon the sympathetic nerve endings of the epidermal mucous glands, of the heart and vessels, and of uterus and salivary glands; in mammels it effects a strong and lengthy milk secretion (*J. exp. Med.*, 1939, 28; *Chem. Abstr.*, 1939, 7396); twigs, leaves and flowers yield verbenalin (*Helv. chim. acta*, 1946, 1544; *Chem. Abstr.*, 1947, 1643).

Plains of Punjab and Bengal and up to 7,000 ft. on the Himalayas from Kashmir eastwards. Occasionally in Bihar also.

VERNONIA (*Compositae*)

V. anthelmintica Willd.; see **Centratherum anthelminticum** (Willd.) Kuntze

V. cinerea Less.

S., H. & Tam.–*Sahadevi*; B.–*Kuksim*; Bo. & Marathi–*Sadodi*; M.–*Nirnochi*; Mal.–*Puvankuruntal*; Tel.–*Gharitikamini*.

Plant—considered diaphor., used in decoct. to promote perspiration in febrile conditions; used as a remedy for spasm of the bladder and strangury.

Juice of plant—given in piles.

Root—given for dropsy.

Flowers—administered for conjunctivitis.

Seeds—used as anthelm., alexipharmac and as a constituent of *masalas* for horses.

Throughout India, ascending to 8,000 ft. in the Himalayas, Khasia and Peninsular Hills.

V. roxburghii Less.

Sing.–*Sanniyakam*.

Properties and uses same as of *V. cinerea*.

Upper Gangetic Plain, Kumaon, Bengal, Central and W. India.

V. teres Wall.

Plant—in Annam a popular medicine for luxations, ulcers and wounds; given for dysmen. and dropsy.

Flower heads—considered ascaricidal.

Tropical Himalayas, from Kumaon 5,000 ft., to Sikkim, Bihar and Madhya Bharat, in dry forests.

VERONICA (*Scrophulariaceae*)

V. anagallis Linn.

Medicinal uses same as of *V. beccabunga*.

Plant yields glucd. rhinanthin (aucubin) (*Bull. Soc. Chim. biol., Paris*, 1924, 665).

Kashmir, Punjab, Bhutan, Bengal, Assam and W. Peninsula.

V. arvensis Linn.

Properties similar to *V. beccabunga*.

Glucd. rhinanthin (aucubin) (*Bull. Soc. Chim. biol., Paris*, 1924, 665).

Western Himalayas, from Kashmir and Kishtwar, 7,000-9,000 ft., to Garhwal.

V. beccabunga Linn.

Herb—alter., diur., antiscor., given in scurvy, impurity of blood, etc.; used as a remedy for scrofulous affections, especially of the skin, bruised and applied externally for healing burns, ulcers, whitlows and mitigation of swollen piles.

Glucd. rhinanthin (aucubin) (*Bull. Soc. Chim. biol., Paris*, 1924, 665).*

W. Himalayas from Kashmir to Kanawar at 9,000-12,000 ft.

V. hederaefolia Linn.

Properties similar to *V. beccabunga*.

Glucd. rhinanthin (aucubin) (*Bull. Soc. Chim. biol., Paris*, 1922, 568).

Kashmir 6,000 ft.

VETIVERIA (*Gramineae*)

V. zizanioides (Linn.) Nash syn. *Andropogon muricatus* Retz.

B.–*Khaskhas*; Bo.–*Khasakhasa*; H.–*Khas*; S.–*Ushira*; Tel.–*Vattiveru*; Tam. & Mal.–*Vettiver*.

Roots—in infusion considered refrig., febge., diaphor., stim., stomch. and emmen.; pulverized and made into a paste in water used as a cooling external application in fevers; their essence used as a tonic.

Essen. oil (*Chem. & Drugg.*, 1914, 225; *J. Indian Inst. Sci.*, 1925, 147A; *Ber. Schimmel u. Co., Lpz.*, 1902, 84; 1903, 76); essen. oil 1·1-1·7% (*Bull. imp. Inst., Lond.*, 1930, 28; *Ber. Schimmel u. Co., Lpz.*, 1932, 71); yields 0·2-0·25% essen. oil (*Parfum. mod.*, 1937, 25; *Chem. Abstr.*, 1937, 2749); root contains 0·403% essen. oil (*Amer. Perfum.*, 1939, 30; *Chem. Abstr.*, 1939, 3965); ketone fraction of the essen. oil varies from 20-90% and yield of β-vetivone from 2-49% (*Helv. chim. acta*, 1939, 640; *Chem. Abstr.*, 1939, 5832).

Practically over the whole of India.

VIBURNUM (*Caprifoliaceae*)

V. foetidum Wall.

S.–*Shirporna-jaya*; Bo.–*Narvel*.

Plant—astrin., emmen.

Juice of leaves—used internally in menor. and in post-partum haemor.

Essen. oil, crystalline alk. (Dymock, Warden & Hooper, II, 168).

Khasia Hills and Assam, 3,000-5,000 ft.

VICIA (*Leguminosae*)

V. faba Linn.

H.–*Bakla*.

Shoots—efficacious in rousing a drunkard from stupor.

As, 0·02 mg. in 100 g. seeds (*C.R. Acad. Sci., Paris*, 1912, 893; *Chem. Zbl.*, 1912, I, 1730); 0·304% PbO in plant ash (Wehmer, I, 561); fruit contains *l*-tyrosine, *l*-dioxyphenylalanine (*Biochem. Z.*, 1933, 465; *Chem. Zbl.*, 1933, I, 3584); convicine, vicine (*J. Amer. chem. Soc.*, 1932, 2038).

Commonly cultivated, especially in north-west India.

V. hirsuta Koch

Seeds contain HCN (*Chem. Zbl*, 1900, I, 208).

From the Punjab to Nepal, in the tropical and temperate region, frequent in cultivated ground, ascending to 6,000 ft. and in the Nilgiris.

V. sativa Linn. var. **angustifolia** Roth
H.–*Ankra*; B.–*Ankari*.

Seeds contain glucd. vicianine and HCN (Fluckiger, Pharmacognosy, 1891, 1012; *Ber. dtsch. chem. Ges.*, 1896, 2108; *Hoppe-Seyl. Z.*, 1892, 193; *Indian J. med. Res.*, 1922, 857; 1925, 63; *Pharm. Acta Helvet.*, 1928, 31); As, 20 mg. in 100 g. fresh plant and 54 mg. in dry (*C.R. Acad. Sci., Paris*, 1914, 268; *Chem. Zbl.*, 1914, II, 885).

Plains of the north-west India.

VIGNA (*Leguminosae*)

V. catjang Walp.; see **V. cylindrica** Skeels

V. cylindrica Skeels syn. *V. catjang* Walp.
S.–*Rajamasha*; H.–*Lobia*; B.–*Barbati*; Bo.–*Lobeh*; Tam.–*Caramunnipayira*; Tel.–*Boberlu*; Mal.–*Alasendi*.

Seeds—diur., used to strengthen the stomach; boiled and eaten, considered good food and to destroy worms in the stomach.

Three proteins (*J. Amer. chem. Soc.*, 1897, 494; Wehmer, I, 581).

Extensively cultivated.

VINCA (*Apocynaceae*)

V. pusilla Murr. syn. *Lochnera pusilla* (Murr.) K. Schum.
Mal.–*Kapavila*; S.–*Sangkha-phuli*.

Decoct. of dried plant—boiled in oil, rubbed on the loins in cases of lumbago.

Plant—poisonous to cattle.

Alk. which acts as a heart poison (*Meded. PlTuin, Batavia*, 1899, 49).

W. Himalayas, Upper Gangetic Plain, Bihar, Orissa, Sind, Gujarat, Konkan, Deccan and Carnatic.

V. rosea Linn. syn. *Lochnera rosea* (Linn.) Reichb.
Marathi–*Sada-phul*; B.–*Nayantara*; P.–*Rattanjot*; Tel.–*Billaganneru*.

Plant—used as a remedy for diabetes.

Infusion of leaves—administered in menor.

Juice of leaves—application to wasp-sting.

Alk. which acts as a heart poison (*Meded. PlTuin, Batavia*, 1899, 49); leaves contain a syrupy alk., a resin and essen. oil (*Rev. filip. Med.*, 1937, 308; *Chem. Abstr.*, 1938, 5443); a hypotensive alk. vincain isolated which appears to be identical or stereisomeric with δ-yohimbine (= ajmalicine = raubasin) (*Sci. & Cult.*, 1955, 568).

Commonly grown in Indian gardens. A native of W. Indies.

VIOLA (*Violaceae*)

V. biflora Linn.

Root—emetic.

Flowers—emol., pectoral, diaphor., antisp.

Leaves—emol., laxt.

Temperate Himalayas from Kashmir to Sikkim, 6,000-11,000 ft.; common in Kashmir at Gulmarg, 8,000 ft., Khelanmarg, 10,000 ft., Tosh Maidan, 9,600 ft. and at Basam Gali in Juniper tract.

V. cinerea Boiss.
P. & Bo.–*Banafsha*.

Plant—used in the same way as *v. odorata*.

Punjab, W. Rajputana, Kathiawar, Sind, Baluchistan and Waziristan.

V. diffusa Ging.

Flowers—in Indo-China given in diseases of chest as a pectoral and bechic.

Subtropical Himalayas from Nepal to Mishmi, 3,000-5,000 ft. and Khasia Hills.

V. odorata Linn.
H. & Bo.–*Banafshah*; B.–*Banafsha*; S.–*Nilapushpa*; M.–*Vayilettu*.

Plant—antipyr., diaphor., febge.

Flowers—emol., demulc., used in biliousness and lung troubles.

Petals—made into a syrup used as a remedy for infantile disorders.

Root—emetic.

Roots contain glucd., methyl salicylate (*Ber. Schimmel u. Co., Lpz.*, 1926, 125; 1929, 109; *J. prakt. Chem.*, 1925, 273; *Arch. Pharm., Berl.*, 1882, 378; *Amer. J. Pharm.*, 1909, 181; *Pharm. Zentralh.*, 1921, 691; 1922, 577); yields an alk. violine, a glycoside violaquercitrin which is probably identical with rutin and a saponin (*Chem. Abstr.*, 1919, 2963; U.S.D., 1645); roots contain saponin and an alk.; roots, leaves and blossoms contain methyl salicylate in the form of a glucd. (*Pharmazie*, 1946, 85; *Chem. Zbl.*, 1947, 65; *Chem. Abstr.*, 1947, 6022).*

Kashmir, 5,000-6,000 ft.; planted in many hill-stations.

V. patrinii Ging.

Flowers—in China, Indo-China and Malaya said to purify blood.

Plants—bruised and applied to ulcers and foul sores.

Temperate Himalayas, 4,000-8,000 ft., from Kashmir to Bhutan, Khasia Hills; hills of the Western Peninsula and Western Tibet.

V. serpens Wall.
H. & P.–*Banafsha*; Kumaon–*Thungtu*.

Medicinal properties similar to *v. odorata*.

Hilly districts throughout India.

V. sylvestris Lam.

Plant—used in chest troubles as bechic and pectoral.

Stems, leaves and flowers—bruised and applied to wounds and foul sores.

Kashmir and Kishtwar, 4,000-8,000 ft.

V. tricolar Linn.

Plant—in Spain considered stim. and used in rheumatism and in skin diseases; taken internally in infusion as a depurative in skin eruptions.

Root—used as a subst. for Ipecacuanha; in infusion useful in dysen. of children.

Plant contains glucd. (*J. chem. Soc.*, 1897, 1134; *Ber. dtsch. chem. Ges.*, 1883, 1685; *Helv. chim. acta*, 1933, 292).

Cultivated in India; occurs occasionally as an escape from cultivation.

VISCUM (*Loranthaceae*)

V. album Linn.

H.–*Banda*; Jaunsar–*Chulukabanda*; Nep.–*Hurchu*; Kulu–*Rini*; P.–*Kahbang*.

Berry—laxt., tonic, aphrodis., diur., cardiotonic.

Plant—given in enlargement of the spleen, in cases of wound, tumours, diseases of the ear, etc.

As (*C.R. Acad. Sci., Paris*, 1907, 941; 1912, 291; *Chem. Zbl.*, 1912, II, 1291; 1918, I, 555); acetyl-choline, propionyl-choline (*Chem. Zbl.*, 1933, I, 1303); contains two active principles, one depresses the heart and contracts isolated intestine and uterus, the other produces a fall of blood pressure (*Arch. exp. Path. Pharmak.*, 1933, 428; 1940, 290; *Chem. Abstr.*, 1941, 3328; U.S.D., 1646); contains choline, oleanolic acid and a resin alcohol; yellowish white flakes obtained from the extract that were lethal to rabbits in 0·007-0·008 g./kg. weight; another glucosidic substance obtained having lethal dose 0·0036-0·004 g./kg. (*Arch. Pharm., Berl.*, 1942, 23; *Chem. Zbl.*, 1942, 2904; *Chem. Abstr.*, 1943, 3507); N-containing fraction of the cardiac depressant yielded pyridine and 1, 3-dimethylnaphthalene (*Pharm. Ind., Berl.*, 1942, 37; *Chem. Zbl.*, 1942, 2905; *Chem. Abstr.*, 1943, 3508; *Rev. Flora med.*, 1931, 195).*

Temperate Himalayas, from Kashmir to Nepal, 3,000-7,000 ft. and Waziristan.

V. articulatum Burm.

H.–*Pudu*; Santh.–*Katkomjanga*; B.–*Mandada*; S.–*Kamini*; Marathi–*Kamarukha*; Tel.–*Kattabadanika*.

Plant—a preparation given in fever attended with aching limbs.

Himalayas, Assam, Khasia Hills, Madhya Pradesh and W. Peninsula.

V. monoicum Roxb.

B.–*Banda*; H.–*Kuchle-ka-malang*; Tam. & Tel.–*Pullurivi*; Dec.–*Kuchle-kisonkan*.

Plant—used as a subst. for nux vomica, poisonous.

Dry leaves—in powder form used as a subst. for strychnine and brucine.

Alk. found in the parasitic plant is taken over from the host plant *Strychnos nux vomica* (Wehmer, II, 962).

Oudh, Sikkim, Khasia Hills, Bihar, Chota Nagpur and S. India.

V. orientale Willd.

H.–*Banda*; Tel.–*Sundarabadanika*.

Plant—used medicinally in different diseases.

Bengal, Bihar, Chittagong and W. Peninsula.

VITEX (*Verbenaceae*)

V. agnus-castus Linn.

Pers.–*Panjangusht*; Arab.–*Athlak*.

Seeds—bitter, boiled in ghee and the mixture given to horses for colic.

Plant—used as a cure for eye diseases and stomachache; used for pains due to chills, one who has caught cold takes a bath in water in which the leaves have been boiled.

Baluchistan.

V. glabrata R. Br.

B.–*Goda*; Bo.–*Sheraz*; Assam–*Bhodiya*; Kan.–*Sengeni*; Tel.–*Luki*.

Bark and root—astrin.

From Assam and Cachar to Malacca.

V. leucoxylon Linn.

Mal.–*Mayilila*; Sing.–*Nebedda*; Tam.–*Nirnochi*; Tel.–*Nevaledi*; Kan.–*Holenekki*.

Bark and root—astrin.

Root—used in intermittent fever.

Leaves—smoked in catarrh and headache.

Fruit—vermifuge.*

All forest districts of Madras State and W. Peninsula.

V. negundo Linn.

S., Bo. & B.–*Nirgundi*; H.–*Nirgandi*; Tam. & Mal.–*Vennochi*; Tel.–*Nallavavili*; Kan.–*Niragundi*.

Leaves—arom., tonic, vermifuge; dried ones smoked for relief of headache and catarrh; discutient, useful in dispersing swellings of joints from acute rheumatism and of the testes from suppressed gonor.

Root—expect., febge., tonic.

Decoct. of leaves—with long pepper given in catar. fever with heaviness of head and dullness of hearing; used as a bath in the puerperal state of women.

Juice of leaves—used for removing foetid discharges and worms from ulcers; an oil prepared with it applied to sinuses and scrofulous sores.

Dried fruit—vermifuge.

Alk. (Dymock, Warden & Hooper, III, 72; *Meded. PlTuin, Batavia*, 1900, 31; *J. Indian chem. Soc.*, 1936, 634); fresh leaves gave 0·05% essen. oil; air-dried leaves gave an alk. (*Indian J. Pharm.*, 1944, 71; *Chem. Abstr.*, 1946, 3227); alk. nishindine isolated (*Quart. J. Pharm.*, 1947, 136; *Chem. Abstr.*, 1948, 1025).*

Throughout India in the warmer zone.

V. peduncularis Wall.

H.–*Nagbail*; B.–*Goda*; Assam–*Osai*; Kan.–*Navaladi*.

Bark—used for making an external application for pains in the chest.

Infusion of leaves or of root bark or young stem bark—useful in malarial and blackwater fever.

Leaves contain traces of an alk.; appears useless in treatment of malaria (*Indian med. Gaz.*, March 1924); it might inhibit the haemolysis that occurs in blackwater fever; may be advantageously given before quinine to those malaria patients who seem liable to blackwater fever (*Indian med. Gaz.*, 1942, 721; *Trop. Dis. Bull.*, 1943, 677; *Chem Abstr.*, 1947, 3205).

Assam, Bihar and Bengal.

V. pubescens Vahl

Tam.–*Myladi*; Tel.–*Busi*; Uriya–*Muria*.

Resin—burnt with dhatura seeds to produce lethargy in Malaya.

Deccan Peninsula and E. Bengal.

V. trifolia Linn.

S.–*Surasa*; H.–*Pani-ki-sanbhalu*; B.–*Panisamalu*; Bo.–*Nirgundi*; Tam.–*Nirnochi*; Tel.–*Nochili*; Mal. & Kan.–*Nochi*.

Leaves—considered useful as an external application to rheum. pains, sprains, etc.; pillows stuffed with these used to cure catarrh and headache; powdered and given in intermittent fevers.

Flowers—prescribed with honey in fevers accompanied by vomiting and severe thirst.

Fruit—used in amenor.

Essen. oil, alk. (*Ber. Schimmel u. Co., Lpz.*, 1894, Oct., 74; *Meded. PlTuin, Batavia*, 1900, 31; *J. Soc. chem. Ind., Lond.*, 1921, 411).*

Scattered throughout India in the tropical and subtropical region.

VITIS (*Vitaceae*)

V. adnata Wall.; see **Cissus adnata** Roxb.

V. araneosa Laws.; see **Ampelocissus araneosa** Planch.

V. carnosa Wall.; see **Cayratia carnosa** (Wall.) Gagnep.

V. indica W. & A.; see **Ampelocissus arnottiana** Planch.

V. latifolia Roxb.; see **Ampelocissus latifolia** Planch.

V. pallida W. & A.; see **Cissus pallida** Planch.

V. pedata Vahl ex Wall.; see **Cayratia pedata** (Wall.) Gagnep.

V. quadrangularis Wall.; see **Cissus quadrangularis** Linn.

V. repens W. & A.; see **Cissus repens** Lam.

V. setosa Wall.; see **Cissus setosa** Roxb.

V. tomentosa Heyne; see **Ampelocissus tomentosa** Planch.

V. vinifera Linn.

S.–*Draksha*; H., P. & B.–*Angur*; Bo.–*Drakh*; Tel. & Kan.–*Draksha*; M.–*Trachei*; Mal.–*Gostani*; Tam.–*Kottani*.

Sap of young branches—used as a remedy for skin diseases.

Leaves—astrin., used in diar.

Juice of unripe fruits—astrin., used in throat affections.

Dried fruit—demulc., cooling, sweet, laxt., stomch., useful in thirst, heat of body, cough, hoarseness, consumption and in wasting diseases.

As, 0·05 mg. in 100 cc. fruit juice (*Arb. GesundhAmt., Berl.*, 1909, 304; *Chem. Zbl.*, 1929, II, 1085; oxalic acid in unripe fruits (*Ber. dtsch. chem. Ges.*, 1876, 982); also malic, tartaric and racemic acids (U.S.D., 1568).

Cultivated in many parts of India especially in the north-west.

VOLUTARELLA (*Compositae*)

V. divaricata Benth. et Hook. f.; see **Amberboa divaricata** Kuntze

WAGATEA (*Leguminosae*)

W. spicata Dalz.

Kan., Marathi & Bo.–*Wagati*; Tam.–*Pulinakkagondai*.

Bark—used as an application for skin diseases.

Root—given in pneumonia.

Hills of the Western Peninsula.

WALLICHIA (*Palmae*)

W. disticha T. Anders.

Lepcha–*Katong*.

Berries—irritate the skin.

Oudh, valleys of Sikkim Himalayas up to 2,000 ft. and Assam.

WALSURA (*Meliaceae*)

W. piscidia Roxb.

Bo.–*Walasura*; Kan. & Tel.–*Walurasi*; Mal.–*Perillappichu*; Tam.–*Malaivirali, Valasura.*

Bark—stim., expect., emmen., emetic., used in skin diseases and as a fish poison.

Saponin (Dymock, Warden & Hooper, I, 341; *Meded. PlTuin, Batavia*, 1900, 31).*

W. Ghats from N. Kanara to the Anamalais, Pulneys and Travancore, N. Circars, Carnatic, Deccan, Hazaribagh, Gaya and Puri Division.

WALTHERIA (*Sterculiaceae*)

W. indica Linn.

Tel.–*Nallabenda.*

Plant—considered emol. and bechic and used as a cough medicine in Mauritius.

All the hotter parts of India.

WATTAKAKA (*Asclepiadaceae*)

W. volubilis (Linn.) Stapf syn. *Marsdenia volubilis* T. Cook.; *Dregea volubilis* Benth. ex Hook. f.

S.–*Madhumalati*; H.–*Nakchikni*; B.–*Titakunga*; Bo.–*Dodhi*; Tam.–*Kodippalai*; Tel.–*Dudipala*; Mal.–*Vattakkakkakkoti.*

Leaves—used as an application to boils and abscesses.

Roots and tender stalks—considered emetic and expect.

Plant—used in colds and eye diseases, to cause sneezing; in snake-bite.

Glucd. dregein, alk. (*Bull. Pharm.*, 1891, 211; *Pharm. J.*, 1891, 617).*

Bengal, Assam, Deccan, S. Mahrata Country and all plains of Madras State.

WEBERA (*Rubiaceae*)

W. corymbosa Willd.; see **Tarenna asiatica** Gaertn.

WEDELIA (*Compositae*)

W. calendulacea Less.

S.–*Pitabhringi*; H.–*Bhangra*; B.–*Bangra*; Bo.–*Pivalabhangra*; Marathi–*Pivalamaka*; Dec.–*Pilabungra*; Tam.–*Patalaikaiantagerai.*

Leaves—tonic, alter., useful in cough, cephalalgia, alopecia and in skin diseases.

Decoct. of plant—used as deobstruent and given in uterine haemor. and menor.

Bengal, Assam, Konkan, plain districts of the Madras State.

W. wallichii Less.

Plant—applied to wounds to heal them.

Tropical Himalayas up to 5,000 ft. from Kumaon to Bhutan and the Mishmi and Khasia Hills.

WIKSTROEMIA (*Thymelaeaceae*)

W. indica (Linn.) C.A. Mey. var. **viridiflora** (Meissn.) Hook. f.

Root bark and stem bark—vesic., purg., used as a fish poison.

Chittagong.

W. ridleyi Gamble

Malay—*Depu pelandok.*

Bark—given in a composite drink for small-pox; used for treatment of boils when pounded and mixed with boiled rice and turmeric as a poultice; used as a fish poison.

Leaves—purg.

Malay Peninsula.

W. viridiflora Meissn.; see **W. indica** (Linn.) C.A. Mey. var. **viridiflora** (Meissn.) Hook. f.

WITHANIA (*Solanaceae*)

W. coagulans Dunal

H.–*Akri*; B.–*Ashvaganda*; Bo.–*Kaknaj*; P.–*Khamjira*; Kan.–*Asvagandhi*; Tel.–*Pennerugadda*; Tam.–*Amukkura.*

Dried fruit—employed in flatulent colic and dyspep. and other intestinal affections; used for coagulating milk.

Ripe fruit—emetic, anodyne, sedative, alter., diur., useful in chr. liver complaints.

Seeds contain an enzyme (*J. Pharm. Chim., Paris*, 1885, 563; *Proc. roy. Soc.*, 1883, 55; *Pharm. J.*, 1883, 588; 1884, 606).*

Punjab, Sutlej valley, Sind and Baluchistan.

W. somnifera Dunal

S.–*Ashvakandika*; B. & Bo.–*Asvagandha*; H. & P.–*Asgand*; Kan.–*Amangura*; Mal.–*Amukkiram*; Tam.–*Amukkira*; Tel.–*Vajigandha.*

Root—considered alter., aphrodis., tonic, deobstruent, diur., narcotic, abortif.; used in rheumatism, consumption, debility from old age, emaciation of children, etc.

Leaves—bitter, given in infusion in fever.

Bruised leaves and ground root—used as a local application to painful swellings, carbuncles and ulcers.

Fruit—diur.

Seeds—hypnotic, diur., used for coagulating milk.

Three alks. (*J. chem. Soc.*, 1911, 490; *Arch. Farmacol. sper.*, 1924, 151; *J. Indian Inst. Sci.*, 1933, 29A; *Chem. Abstr.*, 1934, 1470; U.S.D., 1649).*

In the drier parts of India ascending to 5,500 ft. in the Himalayas.

WOODFORDIA (*Lythraceae*)

W. floribunda Salisb.; see **W. fruticosa** Kurz

W. fruticosa Kurz

S. & Tel.–*Dhataki*; H. & B.–*Dhai*; Bo.–*Dhauri*; P.–*Dhaur*; Kan.–*Bela*; Mal.–*Tatire*; Tam.–*Velakkai*.

Dried flowers—astrin., used in dysen., menor., in derangements of the liver, disorders of the mucous membrane and in haemorrhoids; considered a safe stim. in pregnancy.

Throughout India and Baluchistan.

WRIGHTIA (*Apocynaceae*)

W. antidysenterica J. Grah.; see **Holarrhena antidysenterica** Wall.

W. tinctoria R. Br.

S.–*Svetakutaja*; H.–*Mitha indarjou*; B.–*Indrajau*; Bo.–*Kalakado*; Kan.–*Kirikodasige*; Mal.–*Kotakappala*; Tam.–*Vetpalai*; Tel.–*Jeddapala*.

Bark and seeds—medicinal uses same as those of *Holarrhena antidysenterica*.

Bark—tonic.

Seeds—aphrodis.

Indican (*Ber. dtsch. chem. Ges.*, 1879, 2311; *Chem. News*, 1878, 223); seeds yield 30·49% fixed oil (*J. Indian chem. Soc.*, 1946, 307).*

Rajputana, Madhya Pradesh, Deccan, Konkan, S. Mahrata Country, Circars and W. Ghats of the Madras State.

W. tomentosa Roem. & Schult.

Assam–*Atkuri*; B.–*Dudhkoraiya*; Bo.–*Daira*; H.–*Dharauli*; P.–*Kilawa*; Kan.–*Kadunagalu*; Tam.–*Palai*; Tel.–*Kolamukhi*.

Bark—a preparation given in menstrual and renal complaints.

Throughout tropical India.

XANTHIUM (*Compositae*)

X. strumarium Linn.

S.–*Arishta*; H.–*Chhota-gokhru*; B.–*Banokra*; Bo.–*Shankeshvara*; Kash.–*Lanetsuru*; P.–*Sungtu*; Tel.–*Marulutige*; Tam.–*Marlumutta*.

Plant—diaphor., sedative, sudorific, sialog., considered useful in long-standing cases of malaria.

Root—bitter, tonic, useful in strumous diseases and cancer.

Fruit—cooling, demulc., given in small-pox.

Seeds contain glucd. xanthostrumarin, oxalic acid (*Apothekerztg, Berl.*, 1891, 133; *Ber. dtsch. chem. Ges.*, 1881, 2587; *Indian J. med. Res.*, 1945, 158); believed to have a second active principle (*Amer. J. Pharm.*, 1842, 134; U.S.D., 1650).*

Throughout India ascending the W. Himalayas up to 6,000 ft.

XIMENIA (*Olacaceae*)

X. americana Linn.

Kan.–*Kandarakkare*; Tam.–*Kadaranji*; Tel.–*Kondanakkera*.

Wood—used as a subst. for sandalwood.

Seeds yield a fatty oil (*Chem. Zbl.*, 1913, I, 940; 1917, II, 303; Wehmer, I, 256); a cyanogenetic glucd. sambunigrin (*J. Soc. chem. Ind., Lond.*, 1938, 162).

W. and E. Peninsulas and the Andamans.

XYLIA (*Leguminosae*)

X. dolabriformis Benth.; see **X. xylocarpa** (Roxb.) Taub.

X. xylocarpa (Roxb.) Taub. syn. *X. dolabriformis* Benth.

Bo.–*Jamba*; H.–*Jambu*; S.–*Kanakakuli*; Kan.–*Jambe*; Tel.–*Ettachennangi*; Mal. & Tam.–*Irul*.

Decoct. of the bark—used in worms, leprosy, vomiting, diar., gonor. and ulcers.

Oil from the seeds—given in rheumatism, piles and leprosy.

W. Peninsula and Burma.

XYRIS (*Xyridaceae*)

X. anceps Lam.

M.–*Kochelachi-pullu*.

Leaves—boiled in oil used as a remedy for itches, leprosy and skin diseases.

S. Deccan Peninsula.

X. indica Linn.

S.–*Dadumari*; H.–*Dadmari*; B.–*Chineghas, Dabidubi*; Mal.–*Kochillettipullu*.

Plant—used as a cure for ringworm, itch and leprosy.

Bengal, Assam and W. Peninsula.

YUCCA (*Liliaceae*)

Y. aloifolia Linn.

Fruit—purg.

Cultivated in India.

Y. gloriosa Linn.

Fruit—purg.

Root—detergent.

Almost naturalized in Indian gardens.

ZANONIA (*Cucurbitaceae*)

Z. indica Linn.

S.–*Dirghapatra*; H.–*Chirpoti*; Gujarati–*Parpoti*; Bo. & Marathi–*Chirapota*; Mal.–*Penarvalli*.

Plant—considered febge.

Fruit—acrid, aper., cath., beneficial in asthma and cough.

Leaves—applied topically to reduce inflam.; beaten up with butter and milk, applied as a liniment in antisp. affections; made into a bath by boiling them in water used to remove the nervous irritation caused by boils.

Assam, E. Bengal, Konkan, Deccan, Malabar Ghats and Mysore.

ZANTHOXYLUM (*Rutaceae*)

Z. acanthopodium DC.

H.–*Tumra*; B.–*Tambul*; Lepcha–*Nangryupot*; Nep.–*Bogaytimur*.

Plant—used for same purposes as *Z. alatum*.

Essen. oil; linalool, dipentene, cinnamic methyl ester (*Indian For. Rec.*, 1922, 111); fruits contain an essen. oil and a resinous substance which produces an intense tingling sensation in the mouth; this irrit. principle is possibly fagaramide (*Ann. Biochem.*, 1943, 35; *Chem. Abstr.*, 1944, 1285).

Hot valleys of the subtropical Himalayas from Kumaon to Sikkim, up to 7,500 ft. and Khasia Hills, 4,000-6,000 ft.

Z. alatum Roxb.

S.–*Tumburu*; H. & P.–*Tejbal*; B.–*Nepalidhamia*; Kumaon–*Timru*; Urdu–*Kababe*; Kan.–*Tumburudu*.

Seeds and bark—used as an arom. tonic, in fever, dyspep. and cholera.

Fruits, branches and thorns—used as a fish poison; used as a remedy for toothache; considered carmin. and stomch.

Essen. oil (*Indian For. Rec.*, 1922, 111); fruits contain 1·5% essen. oil (*Indian For. Rec.*, 1929, 133); bark contains a bitter crystalline principle which is identical with berberine, volatile oil and resins (*J. Bombay nat. Hist. Soc.*, 1941, 898).*

Hot valleys of the subtropical Himalayas, Trans-Indus, Punjab along the foot of the Himalayas from the Indus eastwards up to 5,000 ft., Kumaon, 5,000-7,000 ft., eastwards to Bhutan and Khasia Hills, 2,000-3,000 ft.

Z. budrunga Wall. syn. *Z. rhetsa* DC.

B.–*Bazinali*; Bo.–*Tessul*; H.–*Badrang*; Assam–*Brojonali*; Kan.–*Jummina*; Mal.–*Kuyitti*; S.–*Tikta*; Tel.–*Rachamam*; Tam.–*Iratchai*.

Fruit—arom., astrin., stim., stomch., prescribed in dyspep. arising from atrabilis and in some forms of diar.; given in honey in rheumatism.

Root bark—considered a purg. of the kidneys.

Alk. 0·24% (*Arch. Pharm., Berl.*, 1919, 260; *Indian For. Rec.*, 1922, 111); essen. oil (*J. Indian Inst. Sci.*, 1925, 143A); bark contains alks. budrungaine (0·0025%), budrungainine (0·005%) (*Curr. Sci.*, 1947, 185; *Chem. Abstr.*, 1948, 326).*

Konkan, Deccan, S. Mahrata Country, N. Kanara, W. Ghats in S. Kanara, Mysore, Malabar, Anamalais and Travancore at low elevations, Orissa, Sylhet, Khasia Hills and Chittagong.

Z. hamiltonianum Wall.

Nep.–*Purpuraytimur*.

Fruit—arom., stim.

Roots—used as a fish poison.

A boiled fresh solution of the roots killed 100 anopheline larvae in 7 minutes; it acts equally on anophelines and culicines but has no action on pupae (*J. Malar. Inst. India*, 1939, 85; *J. Bombay nat. Hist. Soc.*, 1941, 899).

Throughout Assam in low-level forests, except in the Khasia and Jaintia Hills.

Z. ovalifolium Wight

Plant—used for same purposes as *Z. alatum*.

Essen. oil (*Indian For. Rec.*, 1924, 12; *Chem. & Drugg.*, 1925, 457).

Western Peninsula, in Kanara, Coorg, Nilgiri Hills and near Madras, Khasia Hills, Assam and Mishmi Hills.

Z. oxyphyllum Edgew.

Nep.–*Timur*; Lepcha–*Siritakdangji*.

Plant—used for same purposes as *Z. alatum*.

Throughout the hills of Kumaon between 6,000-9,000 ft., eastwards to Sikkim and Bhutan and Khasia Hills, 4,000-6,000 ft.

Z. rhetsa DC.; see **Z. budrunga** Wall.

Z. triphyllum Juss.; see **Evodia lunurankenda** Merr.

ZATARIA (*Labiatae*)

Z. multiflora Boiss.

Ind. Baz.–*Saatar*.

Plant—arom., stomch., stim., diaphor.

Essen. oil (Dymock, Warden & Hooper, III, 115).

Baluchistan.

ZEA (*Gramineae*)

Z. mays Linn.

S.–*Yavanala*; B.–*Bhutta*; H., P. & Bo.–*Makai*; Tam.–*Makkasholam*; Tel.–*Mokkajanna*; Kan.–*Mekkejola*; Mal.–*Cholam*.

Grain—resolv., astrin., nutritive, nourishing; considered to be a suitable diet in consumption and in a relaxed condition of the bowels.

As, 30 mg. in 100 g. fresh corn (*C.R. Acad. Sci., Paris*, 1914, 268; *Chem. Zbl.*, 1914, II, 885); oxalic acid

(*J. Amer. chem. Soc.*, 1931, 3046); a substance extracted from cobs of certain inbreds which inhibited growth of corn disease fungi and was highly toxic to rats; probably connected with "cornstalk disease" of horses and cattles (*Contr. Boyce Thompson Inst.*, 1946, 277; *Chem. Abstr.*, 1946, 6123).

Widely cultivated in India.

ZEHNERIA (*Cucurbitaceae*)

Z. hookeriana Arn.; see **Melothria perpusilla** Cogn.

Z. umbellata Thw.; see **Melothria heterophylla** Cogn.

ZEUXINE (*Orchidaceae*)

Z. strateumatica Schlechter

B.–*Shwethuli*.

Tubers—locally used as salep.

Throughout the greater portion of India and up to 5,000 ft. on the outer Himalayan ranges.

Z. sulcata Lindl.; see **Z. strateumatica** Schlechter

Adavikakara (Tel.) ... ...
Adavilavangapatta (Tel.) ... 6
Adavi-nimma (Tel.) 3
Adavipalatige (Tel.) 82
Adavipogaku (Tel.) 156
Adavipuchcha (Tel.) ... 83
Adayala (Kan.) 143
Adbaubol (Porebunder) ... 43
Adda (Tel.) 35
Addasaramu (Tel.) 146
Addasarpa (Kan.) 14
Adeiyotti (M.) 249
Adhaki (S.) 44
Adhopuspi (S.) 88
Adhsarita-ka-jari (P.) ... 7
Adigam (Tam.) 134
Adikabiluballi (Kan.) ... 203
Adiphala (S.) 106
Adityabhaktichettu (Tel.) ... 131
Adivi bankatige (Tel.) ... 66
Adivijama (Tel.) 47
Adivimalle (Tel.) 144
Adiyalu (Tel.) 152
Adonda (Tel.) 50
Adondai (Tam.) 50
Adrak (H. & P.) 261
Adu (Bo.) 261
Adulasa (H. & Bo.) 7
Adumuttada-gida (Tel.) ... 2
Aduthinapalai (Tam. & Mal.) ...
Adyanda (S.) 3
Afim (H. & B.) 18
Afiun (Mal.) 18
African Oil Palm (English) ... 105
Afsanthin (Arab. & Pers.) ... 25
Afsantin (Arab.) 26

Z. zerumbet Rosc. ex Smith

S.–*Sthulgranthi*; H. & B.–*Mahabari-bach*; Tel.–*Santapasupu*; P.–*Narkachur*; Kan.–*Kallusunthi*; Mal.–*Kattinji*.

Rhizome—used for same purposes as that of *Z. officinale*.

Throughout India.

ZIZIPHORA (*Labiatae*)

Z. clinopodioides M. Bieb.

Pushtu–*Maurai*.

Decoct. of the dried plant—used to cure typhus fever.

Infusion of leaves—drunk in cases of heat.

Baluchistan.

Z. tenuior Linn.

Ind. Baz.–*Mishkatarelmashih*.

Seeds—used as a cure for fevers; powdered and mixed with butter milk used to cure dysen.

Herb—expect., carmin., aphrodis.

Essen. oil (*Chem. Zbl.*, 1927, 1311).

Baluchistan and N.W. Frontier Province.

ZIZYPHUS (*Rhamnaceae*)

Z. glabrata Heyne; see **Z. trinervia** Roxb.

Z. jujuba Lam.

S.–*Badari*; H., P. & B.–*Ber*; Bo.–*Bor*; Tam.–*Ilandai*; Tel.–*Gangarenu*; Mal.–*Badaram*; Kan.–*Bore*.

Leaves—form a plaster in strangury.

Fruit—mucilaginous, pectoral, styptic, considered to purify the blood and aid digestion.

Root—used in decoct. in fever and as a powder applied to old wounds and ulcers.

Bark—considered to be a remedy in diar.*

Indigenous and naturalized throughout India, and in the outer Himalayas up to 4,500 ft.

Z. nummularia W. & A.

S.–*Bhubadari*; H.–*Jharber*; P.–*Kokanber*; Marathi–*Junglebor*; Tam.–*Korgodi*; Tel.–*Nelaregu*; Kan.–*Purpalli*.

Fruit—cooling, astrin., used in bilious affections.

Leaves—applied in scabies and to boils.

Dry and arid regions of the Punjab, Waziristan, Sind, Baluchistan, W. Rajputana, Cutch, Kathiawar, Gujarat, Khandesh and S. Mahrata Country.

Z. oenoplia Mill.

S.–*Srigalakoli*; H.–*Makai*; B.–*Siakul*; Kan.–*Purgi*; Mal.–*Kottavalli*; Tam.–*Suraimullu*; Tel.–*Paraki*.

Decoct. of root bark—used to heal fresh wounds.

Fruit—used as an ingredient of stomachache pills.

Throughout the hotter parts of India.

Z. rugosa Lam.

H.–*Suran*; Bo.–*Turan*; Dehra Dun–*Bhand*; Kan.–*Mahigotte*; Mal.–*Malantutali*; Tam.–*Kattilandai*; Tel.–*Pinduparighamu.*

Flowers—with equal quantity of the petioles of the betel leaf and half as much lime, given in 4-grain pills twice a day for menor.

Throughout India.

Z. sativa Gaertn. syn. *Z. vulgaris* Lam.

Bo.–*Unnab*; H.–*Kandiari*; Kash. & P.–*Simli*.

Drupes—emol., pectoral.

Syrup of dried fruit—used for broncht.

Leaves when chewed completely anaesthetize the taste for 5-20 minutes; yields 1·7% of amorph. or microcrystalline substance with high potency and a gummy fraction with lower potency (*Farmatsiya*, No. 11/120, 1941, 20; *Chem. Abstr.*, 1944, 2792).

Punjab, Punjab Himalayas up to 6,500 ft., eastwards to Bengal, N.W. Frontier Province and Baluchistan.

Z. trinervia Roxb.

Mal.–*Karkala*; Kan.–*Chuchipali*; Tam.–*Karukava*; Tel.–*Kakupala*. S.–*Vatadala*.

Decoct. of leaves—given to purify blood in cases of cachexia and as an alter. in venereal diseases.

Gujarat, W. Ghats of the Madras State in Coimbatore, Nilgiris and Anamalais to S. Travancore at low elevations.

Z. vulgaris Lam.; see **Z. sativa** Gaertn.

ZORNIA (*Leguminosae*)

Z. diphylla Pers.

Santh.–*Taudijhapni*; Mal.–*Nelam mari*.

Root—given to induce sleep in children.

Throughout the plains of India, ascending to 4,000 ft. in Kumaon.

ZOSIMIA (*Umbelliferae*)

Z. orientalis Hoffm.

Baluchistan–*Gwatk*.

Plant—considered a cure for cough and bowel disorders.

Punjab, Sind and Baluchistan.

ZYGOPHYLLUM (*Zygophyllaceae*)

Z. coccineum Linn.

Seeds—reputed as anthelm.

Sind and Baluchistan.

Edgew.

Nep.–*Timur*; Lepcha–*Siritakdangji*.

Plant—used for same purposes as *Z. alatum*.

Throughout the hills of Kumaon between 6,000-9,000 ft., eastwards to Sikkim and Bhutan and Khasia Hills, 4,000-6,000 ft.

Z. rhetsa DC.; see **Z. budrunga** Wall.

Z. triphyllum Juss.; see **Evodia lunurankenda** Merr.

ZATARIA (*Labiatae*)

Z. multiflora Boiss.

Ind. Baz.–*Saatar*.

Plant—arom., stomch., stim., diaphor.

Essen. oil (Dymock, Warden & Hooper, III, 115).

Baluchistan.

ZEA (*Gramineae*)

Z. mays Linn.

H., P. & S.–*Yavanala*; B.–*Bhutta*; Bo.–*Makai*; Tam.–*Makkasholam*; Tel.–*Mokkajanna*; Kan.–*Mekkejola*; Mal.–*Cholam*.

Grain—resolv., astrin., nutritive, nourishing; considered to be a suitable diet in consumption and in a relaxed condition of the bowels.

As, 30 mg. in 100 g. fresh corn (*C.R. Acad. Sci., Paris*, 1914, 268; *Chem. Zbl.*, 1914, II, 885); oxalic acid

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